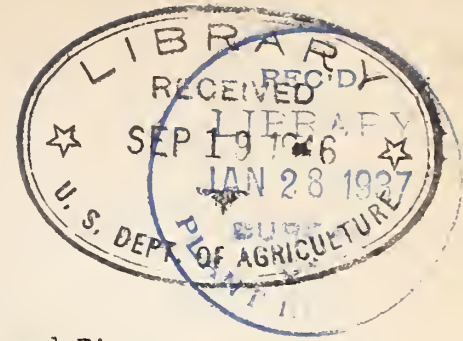


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## CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

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Vol. 29

No. 1

January 10, 1937

Personnel (Dec. 11 - Jan. 10) and Field Station (Dec. 1-31, 1936)

### PERSONNEL ITEMS

Mr. H. M. Beachell arrived in Washington January 7 to confer with members of the Division on rice research and to complete manuscripts on cooperative rice experiments in Texas.

Dr. A. A. Bryan came to Washington January 9, having stopped off at Columbus, Ohio, to attend the Ohio Hybrid Corn School for two days. While in Washington Dr. Bryan will confer with officials of the Bureau on cooperative corn research, prepare manuscripts, and consult the Department library.

Mr. A. C. Dillman is in Minneapolis where he will attend meetings of The Flax Institute of the United States on January 12. His expenses are being paid by the Flax Institute.

Dr. Merle T. Jenkins gave a talk on the Progress of Hybrid Corn in the Corn Belt before the Nebraska Crop Growers' Association at Lincoln, Nebr., on January 5. He returned to Washington January 9.

Miss Helen Johann, who attended the meetings of the American Association for the Advancement of Science at Atlantic City during the week of December 28, came to Washington on January 7 on a vacation trip. She was authorized to remain for several days to confer with personnel of the Division on cereal disease research.

Mr. J. Foster Martin arrived in Washington on January 10, after stops at Bozeman, Mont., and Madison, Wis. While in Washington he will confer with members of the Division on wheat research, prepare manuscripts on cooperative experiments, and consult the Department library.

Dr. H. K. Wilson spent one day in Washington while on his way to Atlantic City to attend the meetings of the American Association for the Advancement of Science. He conferred with Bureau officials on cooperative weed research.

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RECENT PUBLICATIONS

✓ Studies on the Control and Other Aspects of Bunt of Wheat. C. S. Holton and F. D. Heald. Wash. Agr. Expt. Sta. Bull. 339, 35 pp., illus. September 1936. (Cooperation between the Division of Cereal Crops and Diseases and the Washington Agricultural Experiment Station.)

✓ Developing and Testing Improved Varieties of Wheat. K. S. Quisenberry. Cereal Chem. 13(6): 712-718. November 1936.

✓ Fungi Isolated from Discolored Rice Kernels. E. C. Tullis. U. S. Dept. Agr. Tech. Bull. 540, 12 pp., 4 figs. November 1936. (Cooperation between the Division of Cereal Crops and Diseases and the Arkansas, Louisiana, and Texas agricultural experiment stations.)

✓ Equipment for Applying Dust Fungicides to Seed Grain. W. R. Hurst, F. D. Fulton, W. R. Humphries, and R. W. Leukel. U. S. Dept. Agr. Circ. 415, 20 pp., 12 figs. November 1936.

✓ A Note on the Temperature Relations of Certain Fungi. Neil E. Stevens. Mycologia 28(6): 510-513. Nov.-Dec. 1936.

✓ A Second-Chromosome Gene, Y<sub>3</sub>, Producing Yellow Endosperm Color in Maize. H. S. Perry and G. F. Sprague. Jour. Amer. Soc. Agron. 28(12): 990-996. December 1936.

✓ Effect of Germination and Seed Size on Sorghum Stands. A. F. Swanson and Robert Hunter. Jour. Amer. Soc. Agron. 28(12): 997-1004, figs. 1-2. December 1936. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

✓ The Occurrence of Striped-Leaved Plants from a Cross between Two Varieties of Oats. H. H. Love and W. T. Craig. Jour. Amer. Soc. Agron. 28(12): 1005-1011, figs. 1-2. December 1936. (Cooperation between the Division of Cereal Crops and Diseases and the Department of Plant Breeding of Cornell University.)

✓ Registration of Improved Wheat Varieties, X. J. Allen Clark. Jour. Amer. Soc. Agron. 28(12): 1017-1018. December 1936.

✓ We'll Have Better Wheat. [Thru America's Grainfields, Number 3] J. Allen Clark. Successful Farming 35(1): 15, 22, 66. January 1937.

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The meetings of the American Association for the Advancement of Science and affiliated societies were held at Atlantic City, N. J., December 28 to January 2. The meetings were very successful both in attendance and in the programs. Those from the Washington office of this Division who attended were: M. A. McCall, A. M. H. Karrer, L. W. Kephart, H. B. Humphrey, J. H. Martin, A. G. Johnson, V. F. Tapke, H. A. Rodenhiser, R. W. Leukel, H. H. McKinney, L. W. Boyle, E. C. Carter, T. R. Stanton, and M. T. Jenkins. Helen Johann of Madison, Wis., and L. J. Stadler and Joseph O'Mara of Columbia, Mo., also were in attendance.

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Dr. Karrer gave an invitation paper entitled "Selenium in Plants" before a joint session of the various plant science groups. Dr. Tapke gave a paper entitled "Seasonal Cycle of Ustilago hordei" on one of the programs of the American Phytopathological Society. Mr. McKinney was chairman of the section on virus diseases of the program of the American Phytopathological Society.

The Association's \$1,000 prize for the most outstanding paper was awarded to Dr. W. M. Stanley, Rockefeller Institute, for his paper entitled "Chemical Studies on the Virus of Tobacco Mosaic," which was given before the joint session of the various plant science groups.

On Thursday forenoon a round-table conference was held on the general subject of "Development of Resistant Strains in Animals and Plants." This was a joint session of the Genetic Society of America and the American Phytopathological Society. Dr. R. A. Emerson was chairman, with Dr. John. W. Gowan, Rockefeller Institute, as leader for the animal side, and Dr. E. C. Stakman for the plant side. Dr. H. A. Rodenhiser was one of the speakers on this interesting program and discussed the relationship between hybridization in the smut fungi and the development of smut resistant varieties of cereals. This round-table conference was of especial interest as it brought together the animal and plant men.

The meetings were held in the capacious Auditorium, adjoining buildings, and in some of the larger hotels.

The total attendance, including all societies, was between four and five thousand. The hotel facilities were amply adequate, and the weather was propitious. On the whole, the meetings were considered highly successful and thoroughly worth while.

The next winter meetings will be held in Indianapolis, Ind.

A. G. J.

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DATE OF MEETING OF INTERNATIONAL GENETICS CONGRESS CANCELED.

Information has been received that the meeting of the International Genetics Congress, scheduled to be held in Moscow, Russia, in August 1937, has been indefinitely postponed and the local committee in charge of arrangements has been dissolved. Plans for the holding of the Congress at a later date or in some other country have not yet been developed.

J. H. M.  
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## GERMINATION STUDIES IN SPRING WHEATS

In the fall of 1935, following the severe rust epidemic in the hard red spring wheat area, 75 samples of wheat were obtained from this area for the purpose of studying the effects of rust infection and resultant light test weight on germination, and also the probable effects of certain seed treatments on the viability of such seed especially after different periods of storage. The major results of these studies on 55 of these seed lots were published in mimeographed form in February 1936.<sup>1/</sup> A further study of germination in these same 55 lots was made in December 1936, after treated and nontreated portions of each lot had been stored for one year. In table 1 is shown a summary of the results of these tests with similar summaries of results obtained in the fall of 1935. In general, it will be noted that when the seed was sown the day after treatment New Improved Ceresan caused a pronounced increase in the percentage of germination as compared with that of untreated seed, the average increase for all lots being 17.8 percent. The corresponding average increase in germination following the use of copper carbonate was only 2.7 percent. As the period after treatment was prolonged, the successive germination tests seemed to show a general decrease in the benefits derived from treatment with New Improved Ceresan and an apparent increase in benefits from treatment with copper carbonate. After a year's storage the average germination of seed treated with New Improved Ceresan was decreased 5.6 percent, while that of seed treated with copper carbonate was increased 15.3 percent as compared with the germination of untreated seed. Altogether, after the 55 lots of seed had been stored for one year there were 15 increases and 35 decreases in germination recorded for seed treated with New Improved Ceresan, while there were 52 increases and only 2 decreases in germination recorded for seed treated with copper carbonate, as compared with untreated seed. The relative test weight of the different seed lots seemed to bear no consistent relation to the percentage of germination or to their response to seed treatment. Seed of low test weight, however, produced spindling seedlings which developed more slowly than those from plumper grain.

The gradual decrease in benefits derived from treatment of the seed with New Improved Ceresan after prolonged storage of the treated seed may be due in part to the dissipation of the volatile ingredient of this dust which, when the seed is sown shortly after treatment, protects it from the attacks of soil organisms. It also is apparent that in the case of some seed lots, exposure to the fumes of this material for a whole year results in a certain degree of injury to the viability of the seed.

Germination data obtained from 20 other 1935 seed lots received too late to be included in the experiments described above are shown in table 2, together with similar data from wheat of the 1936 crop grown in the drought area. These seed lots were treated on November 16, 1936, and stored until December 7 when they were sown in triplicate in a greenhouse maintained at 15° C. Among the 20 lots received in 1935 the durumms in general and Mindum in particular were benefited most and Ceres and Marquis least by treatment with New Improved Ceresan and copper carbonate. The data on germination in the fifteen 1936 wheat lots were obtained from samples sent in from points in or near the spring wheat drought area.

In the late summer and early fall of 1936 in anticipation of another light weight wheat seed situation similar to that of the previous year but due to the severe drought in a large part of the spring wheat area, it was planned to make germination studies on a large number of such seed lots. This plan was later abandoned when it seemed that a situation similar to that of 1935 apparently would not develop. Such data as were obtained are presented here with the belief that they will be of interest to those in the localities from which the wheat samples were obtained. -- R. W. L.

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<sup>1/</sup> Leukel, R. W. Germination and emergence in spring wheats of the 1935 crop. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumb. Pub.] 20 pp., 1936. [Mimeographed.]

Table 1.--Effect of seed treatments and different periods of storage after treatment on germination in spring wheat

| Variety              | Lots tested | Range in bushel weight | Length of storage period | Average germination from seed- |               |      | Increase or decrease following treatment with- |       |                  |      |
|----------------------|-------------|------------------------|--------------------------|--------------------------------|---------------|------|------------------------------------------------|-------|------------------|------|
|                      |             |                        |                          | Not treated                    | Treated with- |      | New Improved Ceresan                           |       | Copper carbonate |      |
|                      | No.         | Lbs.                   | Days                     | Pct.                           | Pct.          | Pct. | Amt.                                           | Pct.  | Amt.             | Pct. |
| Mixed                | 24          | 40                     | 1                        | 76                             | 85            | 73   | 9                                              | 11.8  | -3               | -3.9 |
|                      |             | to                     | 7                        | 83                             | 91            | 86   | 8                                              | 9.6   | 3                | 3.6  |
|                      |             | 61                     | 42                       | 80                             | 81            | 82   | 1                                              | 1.3   | 2                | 2.5  |
|                      |             |                        | 360                      | 75                             | 63            | 83   | -12                                            | -16.0 | 8                | 10.7 |
| Ceres                | 8           | 46                     | 1                        | 81                             | 92            | 83   | 11                                             | 13.6  | 2                | 2.5  |
|                      |             | to                     | 7                        | 84                             | 94            | 91   | 10                                             | 11.9  | 7                | 8.3  |
|                      |             | 60                     | 42                       | 82                             | 90            | 92   | 8                                              | 9.8   | 10               | 12.2 |
|                      |             |                        | 360                      | 79                             | 78            | 89   | -1                                             | -1.3  | 10               | 12.7 |
| Marquis              | 3           | 42                     | 1                        | 67                             | 82            | 72   | 15                                             | 22.4  | 5                | 7.5  |
|                      |             | to                     | 7                        | 73                             | 88            | 82   | 15                                             | 20.5  | 9                | 12.3 |
|                      |             | 59                     | 42                       | 75                             | 77            | 82   | 2                                              | 2.7   | 7                | 9.3  |
|                      |             |                        | 360                      | 66                             | 64            | 78   | -2                                             | -3.0  | 12               | 18.2 |
| Kubanka              | 8           | 42                     | 1                        | 69                             | 87            | 75   | 18                                             | 26.1  | 6                | 8.7  |
|                      |             | to                     | 7                        | 70                             | 83            | 74   | 13                                             | 18.6  | 4                | 5.7  |
|                      |             | 59                     | 42                       | 65                             | 79            | 77   | 14                                             | 21.5  | 12               | 18.5 |
|                      |             |                        | 360                      | 68                             | 72            | 82   | 4                                              | 5.9   | 14               | 20.6 |
| Mindum               | 5           | 54                     | 1                        | 69                             | 87            | 79   | 18                                             | 26.1  | 10               | 14.5 |
|                      |             | to                     | 7                        | 64                             | 84            | 78   | 20                                             | 31.3  | 14               | 21.9 |
|                      |             | 60                     | 42                       | 65                             | 80            | 79   | 15                                             | 23.1  | 14               | 21.5 |
|                      |             |                        | 360                      | 66                             | 77            | 85   | 11                                             | 16.7  | 19               | 28.8 |
| Miscellaneous durums | 7           |                        | 1                        | 65                             | 83            | 73   | 18                                             | 27.7  | 8                | 12.3 |
|                      |             | 50                     | 7                        | 70                             | 77            | 72   | 7                                              | 10.0  | 2                | 2.9  |
|                      |             | to                     | 42                       | 65                             | 75            | 75   | 10                                             | 15.4  | 10               | 15.4 |
|                      |             | 61                     | 360                      | 69                             | 67            | 80   | -2                                             | -2.9  | 11               | 15.9 |
| Average              | -           | --                     | 1                        | 73                             | 86            | 75   | 13                                             | 17.8  | 2                | 2.7  |
|                      |             |                        | 7                        | 78                             | 88            | 82   | 10                                             | 12.8  | 4                | 5.1  |
|                      |             |                        | 42                       | 75                             | 81            | 82   | 6                                              | 8.0   | 7                | 9.3  |
|                      |             |                        | 360                      | 72                             | 68            | 83   | -4                                             | -5.6  | 11               | 15.3 |

Table 2.--Emergence in spring wheat in relation to variety, and to age, source, test weight and treatment of seed. Seed treated three weeks before sowing in greenhouse at the Arlington Experiment Farm, Arlington, Va., December 7, 1936

| Variety                              | Crop  | Test weight | Where grown | Germination of seed |              |         | Increase or decrease due to |                   |
|--------------------------------------|-------|-------------|-------------|---------------------|--------------|---------|-----------------------------|-------------------|
|                                      |       |             |             | Not treated         | Treated with |         | N.I.C.                      | CuCO <sub>3</sub> |
|                                      | Year  | Pounds      |             | Percent             | Percent      | Percent |                             |                   |
| Mindum                               | (1935 | 58.7        | Crookston   | 76                  | 92           | 83      | 16                          | 7                 |
|                                      | (1935 | 58.3        | Mandan      | 70                  | 90           | 81      | 20                          | 11                |
|                                      | (1935 | 58.0        | Duluth      | 36                  | 66           | 55      | 30                          | 19                |
|                                      | (1935 | 57.5        | St. Paul    | 39                  | 65           | 57      | 26                          | 18                |
| Average                              |       |             |             | 55                  | 78           | 69      | 23                          | 14                |
| Kubanka                              | (1932 | 60.5        | Dickinson   | 79                  | 91           | 93      | 12                          | 4                 |
|                                      | (1932 | 60.0        | Fargo       | 67                  | 80           | 85      | 13                          | 18                |
|                                      | (1934 | 60.0        | do          | 84                  | 91           | 93      | 7                           | 9                 |
|                                      | (1934 | 60.0        | do          | 84                  | 94           | 93      | 10                          | 9                 |
|                                      | (1935 | 59.3        | Moccasin    | 47                  | 60           | 62      | 13                          | 15                |
|                                      | (1935 | 53.5        | Dickinson   | 89                  | 94           | 94      | 5                           | 5                 |
|                                      | (1935 | 48.0        | Fargo       | 75                  | 88           | 73      | 13                          | -2                |
| Average                              |       |             |             | 75                  | 85           | 85      | 10                          | 8                 |
| Durum                                | (1935 | 59.5)       | Mandan      | 60                  | 78           | 73      | 18                          | 13                |
|                                      | (1935 | 55.2)       |             | 81                  | 84           | 86      | 3                           | 5                 |
|                                      | (1935 | 49.4)       |             | 81                  | 91           | 87      | 10                          | 6                 |
| Average                              |       |             |             | 74                  | 84           | 82      | 10                          | 8                 |
| Ceres                                | (1935 | 51.4        | Mandan      | 77                  | 82           | 75      | 5                           | -2                |
|                                      | (1935 | 49.5        | Fargo       | 78                  | 84           | 81      | 6                           | 3                 |
|                                      | (1935 | 45.0        | do          | 80                  | 84           | 79      | 4                           | -1                |
| Average                              |       |             |             | 78                  | 83           | 78      | 5                           | 0                 |
| Marquis                              | (1935 | 48.0)       | Mandan      | 87                  | 89           | 88      | 2                           | 1                 |
|                                      | (1935 | 45.0)       |             | 82                  | 84           | 84      | 2                           | 2                 |
|                                      | (1935 | 38.0)       |             | 79                  | 87           | 86      | 8                           | 7                 |
| Average                              |       |             |             | 83                  | 87           | 86      | 4                           | 3                 |
| Average for all varieties            |       |             |             | 73                  | 84           | 80      | 11                          | 7                 |
| Mindum                               | 1936  | 58.0        | Fargo       | 87                  | 96           | 93      | 9                           | 6                 |
| Kubanka                              | 1936  | 49.4        | Newell      | 62                  | 73           | 65      | 11                          | 3                 |
|                                      | (1936 | 57.0        | Moccasin    | 84                  | 90           | 93      | 6                           | 9                 |
| Ceres                                | (1936 | 56.0        | Fargo       | 66                  | 75           | 78      | 9                           | 12                |
|                                      | (1936 | 55.7        | Mandan      | 83                  | 90           | 87      | 7                           | 4                 |
|                                      | (1936 | 55.2        | do          | 90                  | 97           | 90      | 7                           | 0                 |
|                                      | (1936 | 50.3        | Hebron      | 74                  | 86           | 88      | 12                          | 14                |
|                                      | (1936 | 49.4        | Mandan      | 76                  | 84           | 83      | 8                           | 7                 |
| Average                              |       |             |             | 79                  | 87           | 87      | 8                           | 8                 |
| Marquis                              | (1936 | 54.4        | Moccasin    | 85                  | 91           | 94      | 6                           | 9                 |
|                                      | (1936 | 53.5        | Fargo       | 68                  | 80           | 80      | 12                          | 12                |
|                                      | (1936 | 53.0        | Dickinson   | 83                  | 89           | 85      | 6                           | 2                 |
|                                      | (1936 | 51.2        | Havre       | 60                  | 67           | 75      | 7                           | 15                |
|                                      | (1936 | 49.2        | Hebron      | 75                  | 88           | 86      | 13                          | 11                |
| Average                              |       |             |             | 74                  | 83           | 84      | 9                           | 10                |
| Thatcher                             | (1936 | 54.5        | Fargo       | 65                  | 79           | 78      | 14                          | 13                |
| Do                                   | (1936 | 50.2        | Moccasin    | 88                  | 91           | 93      | 3                           | 5                 |
| Average                              |       |             |             | 77                  | 85           | 86      | 8                           | 9                 |
| Average for all varieties, 1936 crop |       |             |             | 76                  | 85           | 85      | 9                           | 9                 |

## FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

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### LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins)  
(Jan. 7)

Rice threshing and recleaning, and plowing operations were completed on the station by the end of December. Clovers and Italian rye grass, in the rotation plots, are up to a good stand.

Because of the good weather conditions in December farmers were enabled to complete most of their plowing by the end of the month.

The maximum temperature was 78°, which was only 3° higher than last year. The minimum temperature for the month was 31° or 4° less than last year. Ice formed on 4 days. Last year ice formed on 8 days.

The total precipitation was 3.82 inches, or 3.32 inches less than for December 1935 and 2.31 inches less than the 26-year average for the month. The total precipitation for the year was 41.54 inches, 13.72 inches less than in 1935, and 14.99 inches less than the 26-year annual average.

### IOWA

AGRICULTURAL EXPERIMENT STATION, AMES (Corn Breeding, A. A. Bryan) (Dec. 17)

The season of 1936 was a trying one for corn breeding work. Nearly 50,000 hand pollinations were made but the number is out of all proportion to the yields of seed obtained. The 10 inbred lines that have been released by the Experiment Station and are used in the four released Iowa hybrids, together with 89 other lines, were planted in a field of about 2 1/2 acres where irrigation was possible. About 10 inches of water were applied to this field in July and about 700 pounds of seed were produced. The production of most of the earlier lines and a few of the mid-season lines, which seemed especially susceptible to the heat, was very poor.

No lines were lost this year because of the unfavorable conditions. It will be necessary, however, to repeat some of the 1936 plantings next year especially those for making single-cross seed. Less of this will be necessary than following the season of 1934. Almost no F<sub>1</sub> seed was obtained in crosses between early lines. Selection in segregating material was somewhat limited by reason of failure of pollination.

Commercial hybrid seed production fell far short of the apparent demand. It is estimated by Dr. Joe L. Robinson, who has charge of certification, that the total production of hybrid seed corn in 1936 was 185,000 bushels, of which 100,000 bushels are eligible for certification. If the total acreage of corn in Iowa in 1937 is 10,000,000 and one bushel is allowed for planting seven acres, then 13.0 percent of the total acreage may be planted with hybrid seed in 1937. Seed of station hybrids eligible for certification will be available for about 14 percent of the hybrid acreage. The estimated hybrid seed production for

the years 1932 to 1936, inclusive, the acreages planted with this hybrid seed in 1933 to 1936, and the expected acreage for 1937, together with the proportion planted with station hybrids, are shown in the following table.

Estimated production of hybrid seed corn in Iowa for the years 1932 to 1936, inclusive, estimated acreages planted with hybrid seed, and the percentages of hybrid corn acreage planted with seed of station hybrids inspected for certification

| Year | Seed<br>pro-<br>duction<br>(Bu.) | Acreages planted with hybrid seed corn-- |                                    |                                     |                             |
|------|----------------------------------|------------------------------------------|------------------------------------|-------------------------------------|-----------------------------|
|      |                                  | All hybrids                              |                                    | Station hybrids<br>(inspected seed) |                             |
|      |                                  | Acreage                                  | Total<br>corn acreage<br>(Percent) | Acreage                             | Hybrid acreage<br>(Percent) |
| 1932 | 5,000                            | --                                       | --                                 | --                                  | --                          |
| 1933 | 20,000                           | 35,000                                   | 0.35                               | 1,750                               | 5                           |
| 1934 | 44,000                           | 140,000                                  | 1.4                                | 8,400                               | 6                           |
| 1935 | 75,000                           | 308,000                                  | 3.1                                | 67,760                              | 22                          |
| 1936 | 185,000                          | 525,000                                  | 5.3                                | 47,250                              | 9                           |
| 1937 | --                               | 1,295,000                                | 13.0                               | 181,300                             | 14                          |

There has been considerable more demand for hybrid seed because of the outstanding ability of many hybrids to make fair yields under conditions where open-pollinated strains were yielding little or nothing.

#### TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins)  
(Dec. 15)

Weather conditions during the first half of December have been favorable for hardening of small grains in preparation for winter. Temperatures have been about normal with minimums near the freezing point many nights. The maximum temperature during the period was 64° and the minimum 25°. The precipitation totaled 1.20 inches. The weather has been clear for the most part.

Small grains have made slow growth and have furnished little pasture because of the cool nights. They are well rooted and there is ample moisture for the winter months. No rust has been found during the fall months.

The winter wheat nursery at Amarillo has been damaged somewhat by winter grass. Weeding of the nursery is about completed, which should help to conserve moisture. A rain of 0.8 inch was recorded early this month; this should put the experiment in good condition.

(January 1)

Weather conditions in December have not been so favorable for small grains. During the last half of the month temperatures have been sufficiently high to cause rather rapid growth of plants. The maximum temperature for the month was 69° and the minimum, 25°. The mean temperature was 59.4°, which is 2.9° above normal. The precipitation for the month was 1.60 inches, mostly in showers. Although this is 0.85 inch below normal, there is abundant moisture for small grains. During the open, warm weather of the past two weeks grains have started rapid growth. All experimental grain has been pastured to keep down top growth.

Spring seeding of oats on farms has started. Experimental oats on the station will not be sown until about February 1.

## OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger)

The weather of the first half of December was satisfactory, there being more than average moisture.

Grain sorghums harvested for yield were threshed on the 11th and, as anticipated, the yields will be very low. There will be difficulty in obtaining weight-per-bushel figures for many of the plots. Fodder weights will be taken soon.

The minimum temperature for the first half of December was 20° on the 11th and the maximum, 52° on the 5th and 12th. The precipitation was 0.77 inch in three showers and snows.

## KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (Dec. 31)

Winter wheat made fairly satisfactory progress in nearly all parts of Kansas in December. Condition of the crop was considerably improved by rather general precipitation during the first few days of the month, but much wheat in the western third of the State is still very short and in need of more moisture. The Federal and State official reports released on December 20 revealed the amazing total of 16,523,000 acres sown to winter wheat in Kansas this fall. That is an increase of 2,299,000 acres over the acreage sown in 1935, which was the largest ever sown. The present condition of the crop is 80 percent, which is slightly above the average condition for this date. It is estimated that slightly more than 20 percent of the acreage will be abandoned before harvest. With anything like average conditions, however, the State should produce a tremendous quantity of wheat in 1937.

Despite one of the driest Novembers ever recorded at Manhattan (total precipitation 0.02 inch) winter wheat is in excellent condition. A good rain of 0.83 inch fell on December 5, and mild weather for the whole month has permitted wheat to make considerable growth. Nursery sowings are in excellent condition although still rather short on leaf growth. The nonhardy wheats in the rust nursery have been definitely injured by low temperatures, although no temperatures below 3° F. have been recorded so far this winter.

Leaf rust investigations in the greenhouse are well under way. Although physiologic race determinations are not complete, they indicate that races 9, 15, 31, and 11 were the most abundant and widely distributed in the western Mississippi Valley and Plains areas in 1936. Races 9 and 15 continue to be the dominant ones.

Observations, correspondence, and verbal statements of responsible observers indicate that leaf rust infection on volunteer and fall sown wheat has been practically nonexistent this fall over the whole Plains area from central Texas to the Canadian border. In the light of the present situation, it seems unlikely that a heavy epidemic of leaf rust will occur in this area in 1937. Unless rather heavy infections develop early in central Texas, and the spring of 1937 is very favorable for the development of leaf rust in the hard winter wheat belt, the infection in general should be very light.

## NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.)(Jan. 1)

Most of the winter wheat appears to be alive but has been

eaten off close to the ground by rabbits and has been without snow protection during most of December.

The flax in the greenhouse has made healthy, vigorous growth. The use of supplementary artificial light was started Dec. 23.

Generally mild weather, except for a week of subzero temperatures early in the month, prevailed during most of December; there was little snowfall. The mean temperature for December was  $15^{\circ}$ , which is  $2^{\circ}$  above the average. The maximum temperature was  $53^{\circ}$  on the 23rd and the minimum  $-23^{\circ}$  on the 5th. Snow during the four days from Dec. 4 to 7 amounted to 0.14 inch for the first half of December. Nearly all of the snow melted by Dec. 15 and the ground remained bare until Dec. 25. A heavy hoar frost covered the ground and all vegetation Dec. 25 and remained for several days. There was a light fall of snow every day from Dec. 26 to 30. The total precipitation in December was 0.23 inch. The precipitation for the year 1936 was only 6.42 inches, more than 10 inches less than the 62-year average.

Occasional high winds occurred in December accompanied by some soil blowing. For three hours on the morning of Dec. 19 the wind velocity averaged nearly 30 miles per hour and the sun was obscured by dust in the air.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)  
(Jan. 2)

The year just ended set a new record for extremes of temperature, low precipitation, and low crop yields at this station. The mean temperature for February was  $12.2^{\circ}$  below zero and the minimum,  $47^{\circ}$  below. The mean temperature for July was  $81^{\circ}$  and the maximum,  $114^{\circ}$ . The total precipitation for the year was 6.72 inches. This is about 44 percent of the normal precipitation and the lowest recorded at Dickinson since weather recording began here in 1892. The precipitation for November was about normal and that for December was 0.79 inch, or 60 percent above normal.

#### OREGON

SHERMAN COUNTY BRANCH STATION, MOFO (Cereal Agronomy, D. E. Stephens) (Jan. 6)

The long drought in the Columbia River Basin of Oregon was finally broken late in December by a light rainfall followed, in some sections, by snow. At Moro there was 0.49 inch of rain on Dec. 23 and 24 and 0.48 inch of precipitation in the form of snow on Dec. 26, 27, and 28. The total precipitation for the month of December was 1.51 inches. The total precipitation for the 6-month period, July to December, was only 1.83 inches. The precipitation for the calendar year of 1936 was 9.58 inches.

The lowest temperature recorded in December was  $16^{\circ}$  on the 31st. On Jan. 1 the temperature dropped to  $-1$  and last night to  $-4$ . About a foot of snow has fallen since Dec. 26. This snow is now only a few inches deep in places and several feet deep in others, where it was drifted yesterday by a strong east wind. There is practically no frost in the ground.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy,  
R. W. Woodward) (Jan. 4)

Mild weather prevailed throughout December, as shown by a mean temperature of 30.2°. In other years mean temperatures for December have dropped as low as 15°, with many minimums below zero. A minimum of 9° was recorded this year on the 11th, while the low for 21 days exceeded 20°. The precipitation for the month was 1.67 inches, the normal 7-year average. During the calendar year the precipitation totaled 16.01 inches, which is just slightly below the mean. 1936 can well be considered a normal year for northern Utah except for the temperatures of December.

Winter wheat made a slight growth, as shown by the germination of many plants just prior to Christmas. On the evening of December 25, the entire State was covered with a blanket of snow varying from a few inches to over one foot. Many light snows have fallen since, varying from 6 inches to over 2 feet. The dry-farm lands of Cache Valley are covered with some 2 to 3 feet of snow, while less than a foot can be found in the vicinity of Logan. Conditions generally appear favorable at this time, especially in the drought area of southern Utah.

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## C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 29

February 10, 1937

No. 2

Personnel (Jan. 11-Feb. 10) and Field Station (Jan. 1-31)

### PERSONNEL ITEMS

Dr. A. M. Brunson came to Washington on January 14 to complete the preparation of a Yearbook article on pop corn improvement. En route from Manhattan, Dr. Brunson stopped at Ames, Iowa, to confer with officials of the State agricultural experiment station. Dr. Brunson left Washington for Manhattan on January 28.

Dr. J. R. Holbert, senior agronomist in corn investigations, is leaving the Division on March 1 to assume charge of the corn breeding program of the Funk Bros. Seed Co. Dr. Holbert has been in the Division since 1918, his entire service being at Bloomington, Ill. The cooperative corn program in that State was started under his direction and he has played a very active part in developing hybrid corn utilization in that area. Dr. Holbert not only has carried his own official breeding program but has been of material assistance in an advisory capacity to many corn breeders of the State in helping them to solve their breeding problems during the early stages of the development of hybrid corn.

Dr. M. A. McCall and Dr. M. T. Jenkins left Washington for Illinois and Indiana on January 25 to discuss with cooperators plans incident to the resignation of Messrs. J. R. Holbert and R. R. St. John.

Dr. K. S. Quisenberry came to Washington on January 25 to confer with Department officials on wheat research and to prepare manuscripts. On the way from Lincoln, Nebr., Dr. Quisenberry stopped in Chicago to confer with members of the Federal Grain Supervision Office.

Dr. L. F. Randolph stopped for a day in Washington after having spent two weeks in Florida, where he conducted cytological investigations in connection with corn experiments.

Mr. R. R. St. John, associate agronomist, in charge of the cooperative corn breeding program at Purdue University Agricultural Experiment Station, is leaving La Fayette, Ind., on March 1 to assume charge of the corn breeding program of the DeKalb County Agricultural Association, DeKalb, Ill. This organization is one of the most extensive operators in the hybrid corn field and Mr. St. John will have the opportunity to exert a very definite influence in the commercial aspects of hybrid seed corn.

Naturally, the Division regrets losing both Dr. Holbert and Mr. St. John but recognizes the fact that their contributions in the commercial field will still play a most important part in the improvement of American agriculture.

Dr. E. C. Tullis was in Washington about 10 days the latter part of January to confer on cooperative rice disease research.

RECENT PUBLICATIONS

Relative Susceptibility of Certain Species of Gramineae to Cercospora herpotrichoides. Roderick Sprague. Jour. Agr. Research 53(9): 659-670. November 1, 1936. (G-1031) (Cooperative investigations by the Division of Cereal Crops and Diseases and the Oregon, Idaho, and Washington agricultural experiment stations.)

✓ Intraspecific and Interspecific Aversion in Diplodia. Paul E. Hoppe. Jour. Agr. Research 53(9): 671-680, figs. 1-2. November 1, 1936. (G-1036) (Cooperative investigations by the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

✓ Influence of Environment during Maturation on the Disease Reaction and Yield of Wheat and Barley. B. B. Bayles. Jour. Agr. Research 53(10): 717-748, figs. 1-6. November 15, 1936. (G-1033) (The results reported were obtained cooperatively by the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

✓ Nitrogen Utilization by Ophiobolus graminis. Hurley Fellows. Jour. Agr. Research 53(10): 765-769. November 15, 1936. (G-1039) (Cooperative investigations of the Division of Cereal Crops and Diseases and the Department of Botany, Kansas Agricultural Experiment Station.)

✓ Growing and Feeding Grain Sorghums. J. H. Martin, J. S. Cole, and A. T. Semple. U. S. Dept. Agr., Farmers' Bulletin 1764, 46 pp., 33 figs. December 1936.

91-8  
1333  
The Effect of Varying Gene Dosage on Aleurone Colour in Maize. M. M. Rhoades. Jour. Genetics 33(3): 347-354, illus. December 1936. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

✓ Note on the Origin of Triploidy in Maize. M. M. Rhoades. Jour. Genetics 33(3): 355-357. December 1936. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

✓ Effect of Several Varieties of Sorghum and Other Host Plants on the Biology of the Chinch Bug. R. G. Dahms, R. O. Snelling, and F. A. Fenton. Jour. Econ. Ent. 29(6): 1147-1153. December 1936. (Cooperative investigations of the Bureau of Entomology and Plant Quarantine, the Division of Dry Land Agriculture, Bureau of Plant Industry, the Oklahoma Agricultural Experiment Station, and the Division of Cereal Crops and Diseases, B. P. I.)

✓ A Cytological Study of Erysiphe polygoni on Delphinium. Ruth F. Allen. Jour. Agr. Research 53(11): 801-818, pls. 1-8. December 1, 1936. (G-1030) (Cooperative investigations of the Division of Cereal Crops and Diseases and the Agricultural Experiment Station, University of California.)

✓ Hybrid Vigor and Growth Rates in a Maize Cross and Its Reciprocal. G. F. Sprague. Jour. Agr. Research 53(11): 819-830, figs. 1-3. December 1, 1936. (The data on which this paper is based were obtained as a part of the cooperative program conducted by the Division of Cereal Crops and Diseases and the Field Crops Department of the Missouri Agricultural Experiment Station.)

✓ Effect of Age, Condition, and Temperature on the Germination of Flaxseed. A. C. Dillman and E. H. Toole. Jour. Amer. Soc. Agron. 29(1): 23-29, fig. 1. January 1937. (Contribution from the Divisions of Cereal Crops and Diseases and Seed Investigations.)

✓ Rate of Water Loss in Wheat Varieties and Resistance to Artificial Drouth. B. B. Bayles, J. W. Taylor, and A. T. Bartel. Jour. Amer. Soc. Agron. 29(1): 40-52, figs. 1-3. January 1937. (Cooperation between the Division of Cereal Crops and Diseases and the Arizona Agricultural Experiment Station.)

✓ [Species] Specific [sic] Hybridization, a Probable Method for Producing Hardier Winter Oats. F. A. Coffman. (Note) Jour. Amer. Soc. Agron. 29(1): 79-81. January 1937. (Cooperation between the Division of Cereal Crops and Diseases and the agricultural experiment stations of Oregon, New Jersey, Virginia, North Carolina, South Carolina, Georgia, Tennessee, Mississippi, Arkansas, Louisiana, Missouri, Oklahoma, and Texas.)

✓ Soluble Starch: A Study of Its Properties with a Recommended Supplementary Procedure for Determining its Suitability for Use in the Lintner Determination. S. R. Snider and D. A. Coleman. Cereal Chem. 14(1): 1-17. January 1937. (Cooperation between Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Grain Division, Bureau of Agricultural Economics.)

1778  
10792  
✓ Broomcorn Experiments. John H. Martin. Broom and Broom Corn News 25(52): 1, 6-9, 12. Jan. 29, 1937. [Arcola, Ill.]

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#### MEMORANDUM TO THE FIELD STAFF

Memoranda of Understanding with cooperating agencies provide that a report of work during the year shall be submitted as soon as feasible after the close of each growing season, and that copies of this annual report shall be deposited with the Director of the cooperating station and with the Division of Cereal Crops and Diseases in Washington. Formerly, when annual reports were typed in Washington, a sufficient number of copies were prepared to supply one each for the Division in Washington, the Director of the cooperating station, the Head of the concerned Department of the cooperating institution, the superintendent of the branch station, when the cooperative project was conducted on a branch station, and the field man making the report. Now that reports are being typed in the field, this same practice should be followed, a sufficient number of copies being made so as to be available for deposit with these same individuals. In order to make it a matter of record for future reference, so that there will be information as to where copies of the report are deposited, it is requested that a page be inserted following the title page, listing the number of copies prepared and the individuals receiving them.

Most of the field personnel of the Division are familiar with requirements relative to annual reports, and likewise with the form in which they should be prepared. Most of them also have been supplied with mimeographed instructions relative to the preparation of reports. More recently, with the expansion of the Division to include weed research, a number of individuals have been added to the staff who are not familiar with this procedure. Revised instructions are being prepared which will be supplied shortly to all Division personnel having responsibility for preparing reports.

In the past, there has been some laxity in requiring reports from pathological projects in the field, because of the fact that data from such projects oftentimes were not so definitely defined in relation to season, and in general were prepared for publication at more frequent intervals, the published material in part substituting for the annual report. Experience has shown, however, that this is not satisfactory, and from now on annual reports are to be submitted by all individuals in charge of field station projects of whatever character. These reports should be submitted not later than April 1, if possible, or, if not submitted by this date, good and sufficient reasons should be given for the delay. The preparation of annual reports is necessary to insure that results of our research shall not be lost through accident at field station headquarters or through death, resignation, or transfer. It is also necessary for keeping Division records up to date and is a definite obligation to our cooperators. The assistance and cooperation of all field personnel in meeting these several needs are requested.

M. A. McCALL

#### MEMORANDUM FOR THE ENTIRE SCIENTIFIC STAFF

The following memorandum has just been received from Mr. F. D. Richey, Chief of Bureau:

"The General Accounting Office now requires that a copy of Form 61 showing authorization to attend meetings be forwarded to that office before approval will be given vouchers covering attendance at meetings. In order to avoid difficulties, it is suggested that Form 61 be submitted covering all attendance at meetings, even though there are minor exceptions provided in the departmental regulations, except where there is no expense involved by the Department, including salary. In other words, where an individual addresses a local meeting in the evening, involving no expense for travel and no time from his official day, Form 61 will not be required. In all other cases, Form 61 should be submitted. Five copies will be required, instead of four as heretofore.

"It is important that the form be submitted and approved in advance of attendance. Otherwise, reimbursement is liable to be questioned by the General Accounting Office."

You need send in to us only one copy of your request, as always. Please note that the necessity for submitting such requests is urgent even though no expense is involved other than salary.

M. A. McCALL

ADMINISTRATIVE NOTES

TIME FOR SUBMITTING REIMBURSEMENT VOUCHER

The clause in Paragraph 84 of Government Travel Regulations dealing with the period for which reimbursement vouchers shall be rendered is being more strictly enforced by the Accounting Division. Semimonthly accounts no longer will be accepted unless a strong reason is shown.

- (1) For trips of several months duration, render reimbursement voucher at the close of each month or at the termination of travel.
- (2) For shorter trips, submit voucher at completion of travel except (See "3").
- (3) For a number of successive short trips, or where there will be other station expense to include in reimbursement voucher for that month, submit at close of month.

FULL NAMES

Beginning February 1, the Division of Accounts definitely will not accept reimbursement vouchers (Form 1012) and salary vouchers where initials only of payee are used.

Vouchers should read, for example:

NOT J. M. Smith

BUT John M. Smith

OR J. Murray Smith

The name at top of voucher and signature must agree, of course.

H. S. Smith,  
Junior Administrative Assistant.

UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF PLANT INDUSTRY  
WASHINGTON

Office of Chief of Bureau  
B. P. I. Memo. 926.

February 2, 1937

MEMORANDUM TO HEADS OF DIVISIONS

Gentlemen:

Scattered throughout the field, there is a considerable amount of employment of individuals appointed on an hourly basis, the work being above unskilled labor and coming within the classified service, but with a restriction to the effect that employment in any one month shall not exceed \$ 45. In some cases, the restriction is on the year instead of the month, the maximum permitted during the year being \$ 540. In a number of cases recently employees of this character on the rolls of one Division have been employed by another Division under letter of authorization, the sum total of the reimbursement exceeding the restriction in the appointment. This is, of course, illegal. A person under this type of appointment can only be employed under that appointment.

Unskilled labor appointed on a w. a. e. basis can be employed by more than one Division as long as the rate of pay is that called for in the appointment and duplicate payment for any particular time is avoided. Where an employee is under appointment in one Division on a w. a. e. basis, another Division wishing to employ the individual should first make arrangements with the Division holding the appointment. Unskilled labor not under appointment may be employed under more than one letter of authorization as long as care is taken to avoid duplicate payment.

Members of your staff who have occasion to employ personnel should always first ascertain whether an individual is employed by any other branch of the Government.

It will be appreciated if you will have this memorandum called to the attention of your field staff.

Very sincerely,

H. E. Allanson,  
Business Manager of Bureau.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins)  
(Feb. 1)

Weather conditions in January were very disagreeable. Although the minimum temperature of  $17^{\circ}$  was not so extremely low, the mean temperature for the month was  $3.5^{\circ}$  below normal. Two rather severe sleet storms caused heavy damage to power and telephone lines and prevented all but necessary travel. There was a record covering of ice and sleet 3 or more inches deep from Jan. 7 to 13 with the temperature below freezing for a period of five days. On January 22 and 23 another storm occurred and ice and sleet covered the ground to a depth of 2 inches. Precipitation was recorded on 20 days of the month, although the total precipitation amounted to only 1.73 inches or 0.60 inch below normal.

No field work was possible in January. Some heaving of soil occurred during the cold weather. Fall-sown oats were damaged in the nursery seedings. Adapted strains of Red Rust-proof will fully recover but many hybrid strains from crosses of Victoria and Bond were severely damaged. Victoria and Bond were both severely injured.

The 1936 annual report was completed during the month and sent to Washington. Seed is being prepared for seeding spring oats as soon as weather permits.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Feb. 2)

Two rather severe freezes in January appear to have killed most of the varieties in the uniform winter-hardiness oat nursery.

The leaves of the winter barley varieties and tender strains of winter wheat are badly frozen but the plants do not appear to be killed as yet.

A winter and spring wheat seeding made on December 15 has not yet emerged. Normally sown winter wheat made very little growth this winter owing to cold, rather dry weather. A sleety snow on January 7 and 8, totaling 0.57 inch of precipitation, stayed on the ground for more than a week.

The total precipitation for January was 0.66 inch. The maximum temperature was  $54^{\circ}$  on January 1 and the minimum was  $0^{\circ}$  on January 7 and 8; the mean was  $25^{\circ}$ .

COLORADO

UNITED STATES DRY LAND FIELD STATION, AKRON (Wheat Improvement, J. J. Curtis) (Feb. 1)

January has been unusually cold. Snow which fell in late December is still on the ground and has been added to from time to time until at present there are from 3 to 5 inches on the ground. The past January has been the coldest ever recorded at this Station. On 13 of the past 31 days a minimum of zero or below was recorded.

Winter wheat was in good condition when covered with snow the latter part of January and should still be in good condition as it has been covered with snow during the cold weather.

There was very little wind in January and very little drifting of snow. The maximum temperature was  $38^{\circ}$  on the 26th, and the minimum was  $-24^{\circ}$  on the 7th. The precipitation was 0.16 inch.

#### NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN  
(Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.)(Feb. 4)

The month of January was characterized by continuous low temperatures and abundant snowfall. The mean temperature for January was  $-7^{\circ}$ , which is lower than any January mean on record in this locality since 1875. The maximum temperature was  $34^{\circ}$  on the 3d and the minimum  $-31^{\circ}$  on the 21st. The precipitation in January was 0.86 inch, which is half an inch over the 24-year average at Mandan. There has been considerable drifting of snow but practically all of the ground, even in exposed locations, has some snow cover.

The flax in the greenhouse appears to be in good condition but has developed slowly and even the plants receiving supplementary artificial light have not commenced blooming.

#### OREGON

AGRICULTURAL EXPERIMENT STATION, CORVALLIS (Foot Rots of Wheat, Roderick Sprague) (Feb. 1)

The fall and early winter of 1936 was an almost exact duplicate of the record breaking dry season of 1929. There was practically no precipitation until December. The plot near Corvallis was plowed at the first opportunity in early December and a small portion seeded December 10. The day was bright and clear and the prospects good for completing the work. However, rain started during the night and continued for two weeks. Alternating freezing weather, rains, and snow have followed in succession, climaxed by 20 inches of wet snow yesterday; rain is falling this morning. The few fields of wheat in the Willamette Valley which were seeded early in favorable places may survive; the ones seeded in the dust or late are almost devoid of plants.

#### CALIFORNIA

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson)(Jan. 15)

The drought in northern California was broken on December 24. Such a late advent of the rainy season had not been experienced for 50 years. The precipitation since Dec. 24 has totaled 3.66 inches. Other "unusual" weather features include a low temperature of  $17^{\circ}$  during a storm which swept the entire State and did extensive damage to vegetables and citrus fruits; and following this there was a general snowfall over the Sacramento Valley. The snow at Davis did not melt for four days.

Field plots, increase fields, and some nursery tests have now begun growth. We are still waiting for conditions favorable for preparation of the seed bed for the yield nursery. The forced delay should insure against severe lodging, which has ruined these tests during the past two years, but may result in a failure owing to lateness.

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## CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

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Vol. 29

March 10, 1937

No. 3

Personnel (Feb. 11-March 10) and Field Station (Feb. 1-28)

### PERSONNEL ITEMS

Dr. M. T. Jenkins visited Urbana and Bloomington, Ill., and La Fayette, Ind., during the week of February 14 to make arrangements for the conduct of the cooperative corn investigations formerly in charge of Messrs. J. R. Holbert and R. A. St. John.

Dr. J. H. Martin attended the Branch Station Conference at Manhattan, Kans., from February 25 to 27. Immediately following the conference he visited the field stations at Woodward, Okla., Dalhart, Tex., and Tucumcari, New Mex., to discuss plans for sorghum work for the coming season.

Mr. Ralph O. Snelling was in Washington from February 11 to 14 for conference with Division officials in connection with plans for his transfer from Lawton, Okla., to Urbana, Ill. Mr. Snelling is being transferred to Urbana effective March 15 in connection with a project cooperative with the Illinois Agricultural Experiment Station for breeding corn resistant to insect pests. The project of resistance of sorghum varieties and strains to chinch bug attack at Lawton is being continued under the temporary direction of Mr. Walter M. Osborn, of the Division of Dry Land Agriculture, Superintendent of the U. S. Field Station, Lawton, Okla.

### RECENT PUBLICATIONS

✓ Illinois Corn Performance Tests. Results for 1935. G. H. Dungan, J. R. Holbert, W. J. Mumm, J. H. Bigger, and A. L. Lang. Ill. Agr. Expt. Sta. Bull. 427: 283-340, illus. (map). December 1936. (Cooperative investigations of the Division of Cereal Crops and Diseases, the Illinois Agricultural Experiment Station, and the Illinois State Natural History Survey.)

✓ Illinois Corn Performance Tests. Results for 1936. G. H. Dungan, J. R. Holbert, W. J. Mumm, J. H. Bigger, and A. L. Lang. Ill. Agr. Expt. Sta. Bull. 429: 391-420, illus. (map). January 1937. (Cooperative investigations of the Division of Cereal Crops and Diseases, the Illinois Agricultural Experiment Station, and the Illinois State Natural History Survey.)

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Changes in Breaking Strength of Straw of Wheat Varieties from Heading to Maturity. A. T. Bartel. Jour. Amer. Soc. Agron. 29(2): 153-156, fig. 1. February 1937. (Contribution from the Division of Cereal Crops and Diseases and the Arizona Agricultural Experiment Station.)

The 1936 Iowa Corn Yield Test. M. M. Rhoades and Joe L. Robinson. Iowa Agr. Expt. Sta. Bull. 355: [186]-240, fig. 1. February 1937. (Cooperation between the Iowa Agricultural Experiment Station, the Iowa Corn and Small Grain Growers' Association, and the Division of Cereal Crops and Diseases.)

#### COMMITTEE ON MANUSCRIPTS

In order to insure adequate technical attention and to expedite the consideration of manuscripts an editorial committee has been set up in the Division. This committee consists of Dr. S. C. Salmon, Chairman, Dr. M. T. Jenkins, Dr. J. H. Martin, and Dr. A. G. Johnson.

The establishment of this committee will not materially modify the procedure heretofore followed in the preparation and submission of manuscripts. They should be submitted, as before, to project leaders, who in turn will submit them to Mrs. Kinney as representative of the Committee. Correspondence between the Committee and authors relative to suggestions will be handled as heretofore through Mrs. Kinney.

While in general, the quality of manuscripts submitted by Division personnel is excellent, there have been a few instances where data have not been properly checked and it seems desirable again to call attention to the necessity of insuring the correctness of all calculations and agreement between data in the tables and text or among tables. Neglect to insure such accuracy reflects both on the author and on the Division. While every effort is made to check data before the final submission of manuscripts it is evident that neglect on the part of authors increases the work connected with such checking and may unnecessarily delay final submission. It is also suggested that authors should make every effort to reduce size of their manuscripts to the lowest limit compatible with adequate presentation. Data should be analyzed and summarized as completely as possible, no data being presented in the text except those essential for discussion. Extensive repetition of data in the text that are already clearly given in tables is unnecessary.

M. A. McCall.

February 26, 1937.

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

Referring to Amendment No. 12 to the Department Regulations, dated January 28, 1937, it will be noted that in Paragraph 1836, it is necessary that all illegible, soiled, marred or unsightly (license) plates should be turned over to the heads of the divisions, or field stations, who shall see that the plates are destroyed and that a statement certifying that the plates (by numbers) have been destroyed, is sent to the Central Supply Section of the Department.

In this connection, such certificate should be routed through the Bureau Property Room in duplicate, and both copies of the certificate should be signed.

Please see that this new procedure is carried out in connection with the destruction of such unserviceable license plates.

Yours very truly,

GEO. B. HOLMES,  
Jr. Administrative Assistant,  
In Charge of Property.

GBH:het

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

TEXAS

AGRICULTURAL EXPERIMENT STATION, COLLEGE STATION (Wheat Improvement, E. S. McFadden) (March 1)

The precipitation for February was 0.49 inch, or 2.36 inches below normal. The total precipitation since January 1, however, has been 5.50 inches, which is only 0.73 inch below normal. Mean temperatures for both January and February were approximately normal with no extremely low readings. The lowest temperature recorded for the winter was +26° on January 6. The lowest temperature for February was +28° on the 11th. Neither of these did any material damage to small grains, as they occurred at times when the plants were practically dormant. As a result, nearly all of the nursery material has good spring stands with the exception of some of the flax, which germinated poorly, and some late-planted wheats that were thinned out by blackbirds just as the plants were emerging.

There are approximately 5,000 rows of nursery material this year. About 3,000 of these are plant progeny rows from a Hope X Mediterranean cross, 2,000 of which are from plants that survived the previous winter in Kansas. All of the parent plants of the Hope X Mediterranean material were selected for resistance to both stem and leaf rust.

None of the cereal rusts has been observed to date, but there is a trace of mildew on wheat in places, which appears to have spread from rescue grass, on which it has been carried through the winter.

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins)  
(March 1)

Weather conditions in February were favorable for small grains in that temperatures were low enough to prevent rapid growth, and yet no great extremes in temperature occurred. The mean temperature for the month was 48.5°, which was the same as the normal temperature for this period. The maximum temperature was 83° and the minimum, 23°. Temperatures below freezing were recorded on 15 days during the month. The precipitation amounted to only 0.46 inch, which is 1.30 inches below normal. Six dust storms occurred, two of which were rather severe, visibility being reduced to about a mile and being quite disagreeable.

Growth of small grains was satisfactory. During the last week spring growth has started. Fall-sown oats in nursery plots are in the process of recovering from the January freeze. Several strains were so thinned out that they were plowed out and spring oats filled in to prevent border effect on the adjoining varieties. All spring-sown oat plantings were made during the month and are now emerging.

Continued dry weather in the Texas Panhandle has made it necessary to irrigate the wheat experiments at Amarillo in order to prevent loss of the crop.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (March 2)

Two snowstorms in February, the last on February 25 and 26, provided 0.38 inch of precipitation for February and put the soil in fine tilth to germinate spring grains. Soil moisture samples taken on February 15 from wheat plots showed moist soil (ballable) down four feet on fallow and three feet on cropped land.

Winter wheat and barley varieties were showing appreciable spring growth on February 15 this year.

The spring oat and barley nurseries were seeded early (Feb. 9) to ensure that they would have sufficient moisture for germination. The seed has sprouted but has not emerged. A few plants from a January 15 seeding of winter wheat had emerged on March 1. Four varieties of perilla were seeded on February 25.

The uniform winter oat nursery was 100 percent winter-killed. All leaves of all varieties of winter barley were killed in February though the plants of only one variety were killed 100 percent. Considerable differential killing is evident in the other varieties. Winter-killing notes will be taken this week. The temperatures for February were maximum 60° on February 16, minimum 8° on February 1, and mean 37°.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (Feb. 9)

January was one of the coldest months ever recorded at Manhattan and was definitely the coldest since 1929. The period was not marked by any extremely low temperatures but by long periods of continued cold weather. The lowest readings were 2° below zero on January 8 and 9. Nearly 3 inches of sleet fell on January 7 and 8 and this melted just enough to form a heavy layer of ice over everything. Fields were continuously covered with ice for the entire month. Rain totaling 0.38 inch fell on January 30 and froze almost as rapidly as it fell. A thick layer of solid ice was added to the icy sleet already present. This layer of ice persisted until Feb. 7, when most of it melted. The soil is frozen to a depth of about one foot, however, and has not been benefited by the water.

Conflicting opinions have been published as to the probable effect of the ice covering on the winter wheat crop, but little definite information is available. Most of the State was covered with sleet and the ice layer was particularly heavy in the eastern two-thirds. Winter wheat plants in blocks of soil about 2 feet square and 6 inches deep, with the ice layer still intact, were dug up by Prof. H. H. Laude at intervals of a few days throughout the icy period and brought into the greenhouse. None of the plants showed any injury, and all began normal growth immediately. It seems likely that there may be more injury from alternate freezing and thawing, now that the ice is gone, than there was from the ice itself.

Leaf rust work in the greenhouse is proceeding satisfactorily. Physiologic race determinations are nearly complete and hybridization work will soon be under way. Artificial lighting of experiment plants was started on January 10. All parental and hybrid plants to be used in crossing and back-crossing are receiving 4 hours of supplemental light daily. This is materially hastening heading.

#### NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN  
(Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (March 1)

The snow in February amounted to 0.49 inch of precipitation. Temperatures averaged below normal because of prevailing subzero temperatures during the first 9 days. During the remainder of the month temperatures above freezing occurred on 7 days but the mean temperature was below freezing every day. The maximum temperature was 42° on the 16th and the minimum, -22° on the 8th. Some thawing occurred in the latter half of the month and bare ground appeared in exposed locations but melting was gradual so that most of the water was taken up immediately by the dry soil with practically no runoff. More rapid thawing is occurring today with considerable runoff, but deep drifts of snow still remain in sheltered locations.

High winds were frequent in February and caused blocking of the highways by drifting snow. Many country roads have remained practically impassable since January 1. On Feb. 23 a high wind, with an average velocity of 18 M.P.H. for the 24-hour period and no doubt much higher at times during the day, raised considerable soil from exposed fields and covered the snow with a layer of dust. A light snow that night restored the whiteness to the landscape.

The winter wheat nursery is partly uncovered but most of it still has some snow covering.

The flax in the greenhouse has made good growth. Some blooms appeared early in February but most of the plants have not yet commenced blooming.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)  
(March 1)

The beginning of March finds the fields about one half bare and the snow melting rapidly. The winter snowfall was not excessive in this part of the State but there was practically no melting in January. About the middle of February the snow melted for a few days, when colder weather began and prevailed until the end of the month.

Very little of the winter wheat and rye emerged last fall but part of the seed started to germinate. The weather during the winter has not been warm enough to start growth. Evidently the ultimate stand of this grain will depend upon subsequent weather and soil moisture conditions.

Seed is being prepared for seeding. The 1936 crop in most field plots was not sufficient to replace the seed sown, but reserve seed of the 1935 crop will be sufficient for seeding most varieties in field plots and nursery.

The precipitation for February was 0.39 inch, or nearly normal, while the mean temperature was 8.4°, or about 5° below normal.

#### OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy,  
J. F. Martin) (March 1)

The past winter was unusually severe for this part of the country. The temperature dropped below zero on 12 days in January, with a minimum of -28° on January 20. Luckily, there was ample snow cover, so fall-sown grain was not winter-killed.

The winter wheat plots, which were sown November 3, did not emerge until February 23. Plants in the nursery have been struggling to emerge for the last two weeks, but the stands as yet are only fair. They should improve, however, if the soil surface does not crust.

Indications are that spring seeding can be started in about a week.

#### UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy,  
R. W. Woodward) (March 2)

The winter began very mild with no zero temperatures prior to January 1. The month of January was the coldest on record at the Experimental Farm, with a mean temperature of 12° and a mean minimum of zero. The minimum temperature for the month was recorded January 21 as -30°. The precipitation was somewhat below normal in the northern part of the State, yet the ground was covered with from 18 inches to over 4 feet of light snow.

February also was rather cold; there was no thawing weather until the last few days of the month. Heavy snows brought the moisture content to about normal for northern Utah and especially favorable to the south. At this time there are from 12 to 28 inches of heavy, icy snow in Cache Valley, while in most of the State there is no snow left. Snow survey measurements give no cause for alarm in the irrigated areas of Utah. Unlike conditions in other seasons things are as backward in St. George as at Salt Lake or even farther north. No spring work has been done at any place to date.

CALIFORNIA

BIGGS RICE FIELD STATION, BIGGS (Rice Agronomy, L. L. Davis)  
(March 1)

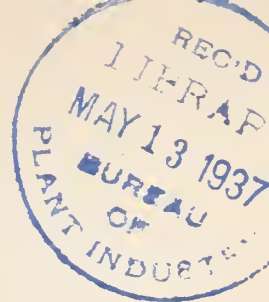
Temperatures in the Sacramento Valley have been below normal during the winter of 1936-37. The autumn rainfall was below normal. The January rainfall of 3.71 inches was near the normal, and the February rainfall of 6.76 inches is nearly double the normal rainfall.

The usual green winter vegetation is not present this year and stockmen have found it difficult to winter stock.

Yield of rice varieties grown in quadruplicate 1/66th-acre plots at the Biggs Rice Field Station, Biggs, Calif. 1936

| Variety                     | C. I.<br>no. | Yield per<br>acre (lb.) |
|-----------------------------|--------------|-------------------------|
| Minai No. 195               | 5684         | 5,330                   |
| Haya Kitabu                 | 6848         | 4,967                   |
| Shiro Beniya                | 6928         | 4,967                   |
| Selection 175               | ----         | 4,884                   |
| 243 A 17-3-1-1-1-1          | ----         | 4,868                   |
| Early Wataribune            | ----         | 4,802                   |
| 241 B 5-3-1-1-1-2           | ----         | 4,769                   |
| Gim Bozu                    | 6873         | 4,736                   |
| 2715 A 12-1-2               | ----         | 4,686                   |
| 231 A Pl. 14                | ----         | 4,670                   |
| 231 A Pl 7-1                | ----         | 4,620                   |
| Selection 361               | ----         | 4,604                   |
| Caloro check (av. 12 plots) | 1561-1       | 4,586                   |
| 243 A 6-50                  | ----         | 4,538                   |
| Kokuya Miyako               | 6919         | 4,505                   |
| 231 A Pl. 12                | ----         | 4,455                   |
| Shiro Beniya                | 5758         | 4,406                   |
| 241 B 7-33                  | ----         | 4,389                   |
| 243 A 1-1-1                 | ----         | 4,340                   |
| Hattan No. 2                | 6805         | 4,340                   |
| Selection 287               | ----         | 4,307                   |
| Kairyo Shinriki             | 6363         | 4,224                   |
| Onsen                       | ----         | 4,059                   |
| Colusa                      | 1600         | 4,043                   |
| 244 A 6-20                  | ----         | 4,043                   |
| 241 B 6-53                  | ----         | 3,762                   |
| 241 B 21-3-1-24 <u>a/</u>   | ----         | 3,696                   |
| Early Prolific <u>a/</u>    | 5883         | 3,540                   |
| 241 B 31-2-18 <u>a/</u>     | ----         | 3,399                   |
| Calady <u>a/</u>            | ----         | 3,366                   |
| Peerless <u>b/</u>          | ----         | 3,251                   |
| 283 A 2-1-1-1 <u>b/</u>     | ----         | 3,184                   |
| Lady Wright <u>b/</u>       | 5451         | 3,020                   |

a/ Medium grain type; b/ Long grain type.



## CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 29

April 10, 1937

No. 4

Personnel (March 11-April 10) and Field Station (March 1-31)

### PERSONNEL ITEMS

Dr. Harry V. Harlan left Washington on April 7 on his annual trek to the barley districts in Arizona and California in the interests of barley research. En route he will stop in Chicago to confer with members of the malting trade.

Dr. M. T. Jenkins, Dr. A. A. Bryan, Dr. M. M. Rhoades, Dr. A. M. Brunson, Dr. G. F. Sprague, Mr. G. M. Smith, Mr. G. H. Stringfield, and Mr. P. E. Hoppe attended the Conference of Research and Extension Workers Interested in Corn Investigations in Chicago on March 12 to take part in the discussion of corn breeding problems. Dr. Jenkins went from Chicago to Baton Rouge, La., and Knoxville, Tenn., to confer with Division and State personnel regarding the cooperative corn breeding program.

Dr. A. G. Johnson left Washington April 6 for Pierre, S. Dak., to attend a conference in connection with the Land Use Program of the Resettlement Administration concerned with the management of certain Government-owned seleniferous areas in central South Dakota.

### RECENT PUBLICATIONS

✓ Developmental Morphology of the Caryopsis in Maize. L. F. Randolph. Jour. Agr. Research 53(12): 881-916, pls. 1-13, figs. 1-12. Dec. 15, 1936. (Cooperative investigations of the Division of Cereal Crops and Diseases, and the Department of Botany, New York State College of Agriculture.) G-1035.

✓ A Method of Inoculating Seed Barley with Black Loose Smut for Use in Studies on Physiologic Races. V. F. Tapke. (Note) Phytopathology 27(1): 115-116. January 1937.

✓ Seasonal Cycle of Ustilago hordei. V. F. Tapke. (Abstract) Phytopathology 27(2): 141. February 1937.

✓ A Study of the Reaction of F<sub>1</sub> Oat Hybrids and Their Respective Parental Lines to Inoculation with Smuts and Rusts. H. B. Humphrey and F. A. Coffman. Phytopathology 27(2): 183-189. February 1937.

✓ Oats. (Thru America's Grainfields, Number 4). T. R. Stanton. Successful Farming 35(3): 26, 36, 64-65. March 1937.

Application of Science to Greenkeeping. M. A. McCall. The Greenkeepers' Reporter 5(2): 7-9, 33. March 1937.

✓ Emasculation of Wheat by Chilling. Coit A. Suneson. Jour. Amer. Soc Agron. 29(3): 247-249. March 1937. (Contribution from the Department of Agronomy, Nebraska Agricultural Experiment Station, and the Division of Cereal Crops and Diseases.)

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LEAVE

Field employees should always bear in mind that every instance of absence from regular duty must be reported on Form AD-17A Application for Leave - Field.

For short periods the application may be submitted after the leave is taken and the return to duty should be noted before the form is transmitted. Requests for extended annual or sick leave should be submitted and approved in advance of the time of absence from duty.

Instances have occurred where employees have failed to report leave taken, and in such cases the only inference possible for the central office is that all accrued leave has been used and that no further leave is due at the end of the year or upon termination of service.

Accrued leave should be taken during the regular period of employment and duty status should not be extended for the purpose of using leave.

H. S. SMITH,  
Jr. Administrative Assistant.

UNITED STATES DEPARTMENT OF AGRICULTURE  
OFFICE OF THE SECRETARY  
WASHINGTON, D. C.

Division of Operation

April 1, 1937

Division of Operation Circular No. 8.

Your attention is directed to paragraph 1834 of the Department regulations which reads in part as follows:

1834. Marking of Vehicles. All motor-propelled vehicles of the Department of Agriculture except motor cycles and railroad speeders, shall at all times be marked, on both sides, in suitable colors and in plain solid block letters.

Trucks and passenger-carrying cars bearing U.S.D.A. tags have recently been observed without the slightest semblance of identification other than the tags.

It is evident that the requirements of the above-mentioned paragraph are being disregarded, particularly in the case of passenger-carrying vehicles.

Arrangements should therefore be made to have all cars in the possession of your Bureau marked in accordance with paragraph 1834.

Joseph Haley,  
Chief, Division of Operation.

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FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins)  
(March 9)

The good weather in February enabled farmers to disk their fields, and make other necessary preparations for the early seeding of rice.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins)  
(March 1)

In general, it seems that the Panhandle of Texas, in fact, the entire State, has one of the best prospects for a wheat crop in years. The wheat crop in the Panhandle is not yet assured. More rain is needed and there is some blowing, although the area that is blowing is much smaller than for some years.

During a recent trip, the writer covered a large part of the Panhandle in inspecting the cooperative wheat variety experiments. There is a fair to good covering of wheat over almost the entire area. In the southern part of the wheat growing area--Plainview and vicinity--wheat has not made much growth and is needing rain. Apparently there has been no blowing there. While the writer was at Amarillo the entire Panhandle received a good rain for this time of year, ranging from about 0.35 inch to as much as 1.5 inches. This precipitation, combined with the warm weather, was causing spring growth to start, which will further retard blowing.

The western part of Deaf Smith County, which has been a problem for several years, is in better condition than for several years. There is some blowing in that area but it is for the most part on farms that have been abandoned. Where wheat was sown and taken care of, it covers the ground well and is holding.

The wheat growing area around Amarillo is in only fair condition. Wheat will survive until more rains come. East of Amarillo towards Panhandle the wheat looks very well. North and east of Amarillo conditions are satisfactory. Hansford and Ochiltree counties have some of the best wheat ever seen on the Plains.

The writer was informed that considerable wheat has been lost by soil blowing in Sherman, Dallam, Hartley, and Moore counties.

The wheat on the experiments at Plainview and Spearman are excellent. The test at Hereford is located in rather a dry area but has good stands. The wheat in the experiments at Amarillo is in poor condition because of a heavy growth of winter grass in the field. The stands in the nursery are not at all satisfactory. It may be that the grass removed the moisture so fast that the wheat died in the seedling stage. The nursery was weeded last fall after the wheat was up and was recently watered. The varietal test has a much better stand and the winter grass is not so thick in it. With the recent moisture it may make a crop.

The barley winter-hardiness nursery showed considerable differential killing. Fall-sown oats at Amarillo were all killed. Fronteira and Frondiso, the new rust-resistant wheats from Brazil, were also completely killed.

(April 1)

The maximum temperature for March was 75°; minimum, 23°. The mean temperature was 50.7°, which is 4.9° below normal. The precipitation for the month, recorded on 13 days, was 3.22 inches, or 1.13 inches above normal. The last killing frost of the season was recorded on March 31 with a minimum temperature of 26°, which killed most of the fruit in this area and over much of northern Texas. The weather in general was rather disagreeable during the month owing to the frequent rains, high humidity, and cool weather. Field work was impossible during most of the month owing to the frequent rains and cloudy weather.

Small grains made rapid and favorable progress in March. Although rains caused some yellowing and discoloring of the leaves of grain in low places, the crop was generally favored by weather conditions. No rust of importance has been found to date, even on wheat. One pustule of leaf rust was found on the 31st, which is the first observed. Normally, leaf rust of wheat has reached epidemic proportions by this time of the season. Corn planting was delayed until near the end of the month and many fields on farms are still unplanted. The minimum temperature of 23° on the 28th killed some clover and corn that had emerged.

#### OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy,  
V. C. Hubbard) (April 1)

Small grains made considerable growth in March even though temperatures were low; temperatures averaged 11° lower than the 1936 March mean and 5° below the 23-year station average. Winter wheat in nursery rows seeded on October 12 is nearly to the first joint stage.

Spring barley and oat varieties seeded on February 9 emerged to good stands on March 4 and 5, respectively. Freezing temperatures were recorded on 15 days after the emergence of the spring grains. Minimum temperatures of 16°, 18°, and 18° on March 14, 26, and 27, respectively, nipped the leaf tips. The 18° temperatures apparently did more damage than the 16° temperature. Winter wheat, particularly the early varieties, showed more noticeable injury than did the spring cereals. Undoubtedly this was due to their more advanced stage of growth.

Flax varieties sown on four dates are emerging slowly and irregularly. Emerged plants showed little or no freezing injury.

Moisture fell eight times during the month, totaling 1.78 inches of precipitation. The maximum and minimum temperatures were 72° on March 22 and 16° on March 14; the mean temperature was 43°.

KANSAS

FORT HAYS BRANCH STATION, HAYS (Cereal Agronomy, A. F. Swanson)  
(March 17)

The rainfall from January 1 to March 15 amounted to 1.56 inches in the form of both rain and snow, and has more recently been sufficient to eliminate much of the danger of soil erosion by wind.

January was one of the coldest months on record. Toward the end of the month and in early February alternate freezing and thawing of the soil occurred. The condition of the soil became ashy and on February 8 the first soil movement by wind caused some injury to unprotected fields of wheat. Many farmers took protective measures to save their fields, but how successful such measures would have been had the winds continued will not be known. Instead, more snow and rain followed, which crusted the ground. The wheat emerged from dormancy about March 1 and sufficient growth is rapidly taking place to protect the fields more and more against soil blowing.

At Hays winter-killing of wheat is practically nil, or of such little consequence as to have no effect on stands. Winter barley, however, is severely injured. Where wheat followed wheat the sub-soil moisture is limited but on fallowed land a good crop is in prospect.

This winter, in cooperation with Mr. L. C. Aicher, superintendent of this station, it has been possible to measure the value of winter wheat pasture. Fourteen spring calves were weighed on December 14 and at 28-day intervals. At the close of the first period the calves gained 1.90 pounds and consumed 3.35 pounds of dry sorghum hay daily. During the second period from January 11 to February 8, when the wheat was under ice and snow much of the time, the daily gain was 1.12 pounds, but the calves consumed 11.9 pounds of dry feed and 1 pound of cottonseed cake. The plan of the experiment was to feed cake with the dry feed whenever snow more or less covers the growing wheat. The weather moderated considerably during the third period ending March 8 with the wheat coming out of dormancy about March 1. The daily gain was 2.35 pounds, and the dry feed consumption only 2.5 pounds with 1 pound of cake. Since March 8 no cake has been fed as it is expected the protein supplement will now be supplied by the green wheat.

The calves have ranged continually on the wheat since the beginning of the experiment and have at all times had free access to all dry feed desired. To date the crop does not appear injured but is rather closely grazed, as less than one acre is available to each animal. The field is fallowed bottom land. The wheat was sown the first week of September at a rate of 1 1/2 bushels to the acre. The results so far obtained from grazing probably could not have been obtained this season on upland.

On December 8 sampling indicated that the green wheat had made sufficient growth to produce 1.085 tons of oven dry matter, or 3.78 tons of green forage. On March 12 the moisture content of the seedbed to a depth of four feet was practically identical on the grazed area and on ungrazed plots. The ungrazed plots have an excessive quantity of dead tops mingled with green growth. The grazed area more or less resembles a mowed lawn and at the moment is under a light snow cover with the calves "nosing" out the green plants. The grazed area is firm and has never shown a tendency to blow. The calves will be removed about April 1 and the attempt made to compare yields from the grazed and protected areas.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement,  
K. S. Quisenberry) (April 10)

The season is sufficiently advanced for making general estimates on the survival of winter wheat. In the uniform winter-hardiness nursery for soft wheats considerable killing has occurred. The more tender varieties such as Redhart and Purplestraw are badly killed. All the spring varieties and tender winter wheats in the classification nursery have been killed. A number of Hope x Cheyenne selections that were thought to be winter hardy are showing signs of killing, although some seem to be hardy. Among the more adapted varieties very little or no plant killing occurred, although there was heavy leaf injury.

Because of increased interest in the State, some winter barley was sown last fall. All seedings, including the uniform winter-hardiness nursery, were killed 100 percent. It is understood that winter barley on farms in Nebraska was killed badly. On recent trips fields as far south as central Kansas were seen that showed killing.

The killing apparently was caused by a series of conditions. The fall was dry with no subsoil moisture. A sudden drop in temperature in November gave the wheat a severe shock. January was cold, in some places the coldest on record, and at Lincoln one of the coldest. Some snow covering during January gave protection as well as some much needed moisture. During the first part of March it was very dry, with some blowing and the injured plants had little chance to recover. Since March 23 there has been more moisture accompanied by cool weather. Growth has been very slow, but with ample moisture for the present prospects for a crop are much brighter.

At North Platte, winter wheat is a failure owing to drought and low temperature. At Alliance, the seedings were just starting to emerge on April 4 and it is very doubtful if a crop will develop, because there is little moisture in the soil and emergence is so late. At Valentine, the varieties in plots emerged to good stands last fall but all plants were killed by low temperatures and soil blowing.

In the eastern part of Nebraska wheat is in good condition and there is ample moisture for the present. West of Lincoln, conditions become gradually worse and the wheat in the western part of the State looks very poor except in very isolated spots. Many of the fields failed to come up and others were injured by blowing and winter-killing. Apparently wheat in western Nebraska is in worse shape than in any other area of the Great Plains.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN  
(Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (March 16)

There was only a trace of precipitation in the first half of March; in fact, only 0.03 inch has been recorded here since February 7. Temperatures above freezing in the first week in March melted most of the snow. Ice in the Heart River started to break up and the water rose to 9 feet above the winter level on March 9 but subsided to 4 feet in the next few days of below freezing temperatures, leaving the channel full of ice. The ground has remained frozen during the past week. The surface soil appears very dry and some dust has been raised on windy days.

The winter wheat has been entirely bare of snow for the past 10 days but temperatures have remained too low for growth and most of the plants show no sign of life.

The flax in the greenhouse is in full bloom and many bolls have set.

The maximum temperature was 67° on the 6th and the minimum, 8° on the 12th.

(April 1)

Snowfall during the last half of March amounted to 0.48 inch of precipitation. Temperatures have been below freezing every night since March 7 but temperatures above freezing almost every day have melted most of the snow. High wind on the 23rd, averaging 20 miles per hour for the 24 hours, piled up the snow in deep drifts, some of which still remain unmelted.

The winter wheat in the winter-hardiness nursery appears to be all dead, but it is still too early to be sure of this because the continued low temperatures have been unfavorable for growth.

Germination tests of a few wheat varieties in soil showed slow, poor germination of 1936 seed in comparison with 1935 seed. Seed from the 1935 crop has been put up for seeding wherever available.

The flax in the greenhouse is blooming well and setting a fair crop of bolls.

The maximum temperature was 48° on the 16th and the minimum, 2° on the 24th.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)  
(April 1)

The ground has been practically bare for the past few days but a trace of snow is falling today. The country to the southward retains considerably more snow, especially near the South Dakota line. The precipitation at this Substation for March totaled about 0.60 inch, most of which fell in the blizzard of March 23.

A few days of warm weather would put the fields in condition for field work, but if the present unsettled weather conditions continue seeding probably will be delayed until next week or later.

Seed for field plots and nursery is being assembled and prepared for seeding.

WASHINGTON

AGRICULTURAL EXPERIMENT STATION, PULLMAN (Wheat Improvement,  
O. A. Vogel) (March 17)

The only fields of winter wheat in the area between Colfax and La Crosse that survived the winter with good stands were seeded soon after the early September rain. Later seedings germinated and then died, because of low temperature and lack of moisture.

The few seedings between La Crosse and Lind remained dry until after freezing weather set in. These seedings are just emerging and appear to be in good condition.

Most of the winter wheat seedings around Pullman have survived the winter with good stands. Early-sown winter barleys and all fall-sown spring wheats, however, were severely injured during the winter.

Soil moisture conditions in the eastern part of the State are somewhat below normal. Some of the snow drifts on the steep north slopes around Pullman still cover the fence posts.

The only seeding of spring wheat nurseries so far is at Lind on March 9.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy,  
R. W. Woodward) (April 2)

March has been uniformly cool. There were a few days when the maximum was above 50°. The mean temperature for the month was 35°, which is one of the low means as compared to other years. No farm work was possible on the North Logan station farm until the last two days of March. Since then all preparations have been made for spring seeding but only a little seeding has been done. A heavy rain began the night of April 1 and was followed by a 6-inch snow.

This is probably the most backward spring in many years for southern Utah. According to reports little, if any, farm work has been done in the State. None of the outlying nurseries have been seeded as yet and there are prospects of still further delay.

A number of winter wheat fields show good stands but have made only a limited growth, much of the seed having germinated during the winter. The winter wheat nursery located at Clarkston is still covered with considerable snow, as are most of the west and north sections of Cache valley.

The precipitation since January 1 is just slightly above average, making the prospects for irrigation water quite promising.

CALIFORNIA

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson) (March 27)

Despite an unprecedented drought extending until December 24, we now have had 17.8 inches of precipitation, 3 inches above normal since July 1. The persistence of the wet, cool weather has prevented normal growth so that heading dates averaging 5 weeks later than those in 1936 are possible. Cereal seedings were completed during a brief break in the weather, Feb. 19-23, and uniform emergence was noted 10 days later. Many farmers still have vacant acreages originally intended for cereals, sugar beets, or winter sown legumes.

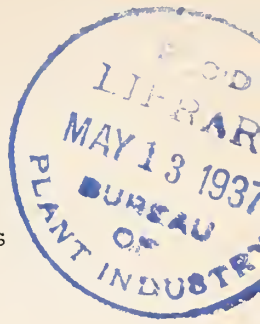
An unprecedented amount of albinism has appeared in wheat and barley that emerged during January. Most wheat varieties are similar for this character, about one albino to 50 normal plants, but a wide range has been noted in barley. It seems that about three fourths of the albino plants recover promptly, but for some there is no hope. Only two diseases have been found - mildew and barley scald - and neither is serious.

Members of the Division will be interested to learn that Mr. Knowles A. Ryerson will become director at the University Farm on July 1.

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## CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)



Vol. 29

April 25, 1937

No. 5

Personnel (April 11 - 25) and Field Station (April 1-15)

### PERSONNEL ITEMS

Dr. B. B. Bayles spent several days in Indiana to make observations on winter-killing of wheat.

Mr. A. C. Dillman left Washington on April 18 to visit points in Kansas, Arizona, California, and Utah in the interests of flaxseed production and improvement.

Dr. M. A. McCall and Dr. S. C. Salmon were at Ames, Iowa, on April 15 and 16 to consult with officials of the Iowa Agricultural Experiment Station regarding the cooperative weed research program.

### RECENT PUBLICATIONS

✓ Virus Mutation and the Gene Concept. H. H. McKinney. Jour. Heredity 28(2): 51-57, fig. 1 and frontispiece. February 1937.

✓ The Degree of Bunt Resistance Necessary in a Commercial Wheat. G. A. Wiebe and F. N. Briggs. (Note) Phytopathology 27(3): 313-314. March 1937.

✓ Influence of Stripe Rust on Growth, Water Economy, and Yield of Wheat and Barley. Wayne M. Bever. Jour. Agr. Research 54(5): 375-385, figs. 1-3. March 1, 1937. (G-1042). (Cooperative investigation of the Division of Cereal Crops and Diseases and the Idaho Agricultural Experiment Station.)

✓ Undescribed Species of Cercospora on Certain Grasses in Oregon and Washington. Roderick Sprague. Mycologia 29(2): 199-206, figs. 1-3. March-April 1937. (Cooperative investigations by the Division of Cereal Crops and Diseases and the Oregon and Washington agricultural experiment stations.)

✓ Influence of Certain Oat Varieties on Their F<sub>1</sub> Progeny. Harland Stevens. Jour. Amer. Soc. Agron. 29(4): 314-323, figs. 1-3. April 1937. (Cooperative investigation of the Division of Cereal Crops and Diseases and the Idaho Agricultural Experiment Station.)

## FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

### LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins) (April 12)

The mean temperature for March was the lowest recorded for that month in the past 10 years, with the exception of 1931. The maximum temperature was 79°, the minimum temperature, 28°, and the average mean, 55°. In 1936, the maximum for March was 86°, the minimum, 41°, and the average mean, 64°.

The total precipitation for the month (3.5 inches) was slightly below normal but 2.29 inches more than in March 1936.

Farmers made very little progress in field work of any kind because of frequent rains, many cloudy days, and low temperatures. The indications are that much of the rice sown in early March will have to be reseeded because of poor stands.

Corn in date-of-seeding plots on the station and in commercial fields was severely damaged by temperatures of 36°, 34° on March 28 and 31.

Mr. M. Amine Youssef, Envoy Extraordinary and Minister Plenipotentiary of His Majesty the King of Egypt, and an official of the Egyptian Department of Agriculture, were station visitors on March 17.

### TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (April 16)

Weather conditions during the first half of April were favorable for the growth of all crops. Clear, moderate weather prevailed; there was no precipitation. A minimum temperature of 32° was recorded on the morning of the 6th, accompanied by a heavy frost, which apparently caused no damage. The maximum temperature for the same period was 90° on the 15th.

Small grains have made rapid growth owing to favorable temperatures and abundant moisture and are in danger of becoming too rank. First heading notes were recorded on Fulghum type oats and on early barley varieties today. First heading notes are 5 days earlier for oats and 3 days earlier for barley than in 1936, which was considered an early season.

A rather general infection of leaf rust on wheat was found today for the first time. A very few pustules of rust have been found previously. Normally, leaf rust has reached the epidemic stage long before this time of year.

### KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (April 10)

The spring of 1937 is proving to be very late and cold in Kansas. Rain or snow fell at frequent intervals in March and kept the soil so wet that little farm work could be done. Temperatures remained subnormal and spring growth has been greatly delayed. In the eastern half of the State most of the oats were sown very late and in many localities farmers were unable to sow at all and have abandoned the idea of growing oats this year. The acreage in oats in Kansas this year therefore will be low and the crop will be late.

Owing to cold, wet weather, it was not possible to sow the spring-wheat rust nursery until March 20--fully 10 days later than usual. Since sowing, the weather has remained cold and the plants are just now emerging. The spring wheat nursery comprises 462 varieties, selections, and hybrids grown in single 8-foot rows.

Winter wheat in the rust nursery came through the winter without injury except in some nonhardy winter x spring hybrid lines and selections. Spring growth has started but is making little progress owing to cold weather. No rust of any kind can be found on winter wheat in the vicinity of Manhattan, and no reports of rust have been received from any point in the State.

The first official estimate on the 1937 wheat crop in Kansas appeared today. The estimated yield is 174,000,000 bushels--approximately 54,000,000 more than in 1936. The condition of the crop is given as 73 percent, which is somewhat better than the 1936 figure for the same period. In the eastern two-thirds of the State winter wheat is in excellent condition and moisture is ample. In the western third, however, the drought persists and winter wheat is only fair to poor. Abandonment of 17 to 19 percent of the 16,523,000 acres is forecast and most of that will occur in the western third of the State.

Greenhouse work is nearly completed for this year, although considerable space and time are now being given to building up rust cultures for inoculations to be made in the nursery. Hybridization work has just been completed and all greenhouse plants and crossed seed will be harvested by May 1.

#### FORT HAYS BRANCH STATION, HAYS (Cereal Agronomy, A. F. Swanson) (April 16)

The first 15 days of April have been lacking somewhat in moisture. Soil movement in the more westerly part of the State has been responsible for some dusty days in this vicinity. Wheat sown on fallowed land is making vigorous growth. Wheat sown on cropped land may soon reach more or less of a critical period, if additional rainfall should fail. From Hays eastward, wheat for the most part is in a favorable condition. West and southwest of Hays conditions are spotted.

All of the spring/<sup>small</sup>grain is up to a full stand. All of the seedings were made on fallowed land with the hope of building up a reserve seed supply.

The Annual Judging Contest for boys and girls in 4-H Club and vocational high school work will be held at this Station on April 24. It is expected that 400 boys and girls from western Kansas will enter this contest. Judging is given in grain and livestock and in work of interest to women. The annual "Round-Up" will take place on April 25, when the results obtained from different feeding experiments with livestock will be made public. This event usually draws a large crowd.

#### COLORADO

#### UNITED STATES DRY LAND FIELD STATION, AKRON (Wheat Improvement, J. J. Curtis) (April 16)

There was no precipitation during the first 15 days of April. There have been several windy days, as a result of which there has been a little soil blowing on the lighter soils with no vegetative cover. The maximum temperature during the first half of April was 83° and the minimum, 20°.

The seeding of spring wheat, barley, and oats was completed early in April. They are emerging at present and good stands appear certain, as there is sufficient moisture in the soil to cause them to germinate.

Winter wheat has made rapid growth the past week. All plots on all soil preparations look well. Stands in all cases are satisfactory. Prospects on the Station and in the surrounding country are the best they have been since 1930.

#### NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (April 17)

The snowfall on two days early in April amounted to 0.86 inch of precipitation for the first half of April. Traces of precipitation were recorded on other days. The snow melted slowly with little run-off and somewhat improved soil moisture conditions but delayed preparation of land for seeding until April 10.

Land was prepared, staked out, and marked for seeding wheat, oats, and barley varietal plots and wheat nurseries April 10 to 14, inclusive. The regional, intrastate, and local 9-row wheat nurseries were sown April 15, 16, and 17. The wheat varietal plots were sown April 16 and the oat and barley plots April 17. High winds on several days raised considerable dust in neighboring fields but caused little soil blowing in the experiment station plots because most of the land in exposed locations was prepared with duckfoot cultivator or other implements that left the surface ridged.

Winter-killing in the winter wheat nursery is practically complete although it is perhaps too early to be certain of this. No spring growth has been noted in the winter wheat nursery although winter rye in the experiment station plots has made good growth.

The maximum temperature was 69° on the 15th and the minimum 12° on the 4th. Above average temperatures have prevailed during the past few days and grasses have made noticeable growth. The surface soil is generally dry and probably an effective rain will be required to produce satisfactory emergence of seed sown during the past week.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (April 16)

Seeding at the Substation began today with the seeding of spring wheat varieties in the nursery, including the uniform regional nursery and the intrastate nursery. Apparently there is enough moisture in the surface soil to germinate what grain is seeded now, although a few windy days this week have dried out the soil considerably.

The precipitation so far in April is 0.55 inch, mostly in the form of snow.

A few farmers in this vicinity have begun seeding.

#### WASHINGTON

AGRICULTURAL EXPERIMENT STATION, PULLMAN (Wheat Improvement, O. A. Vogel) (April 12)

Winter wheat in eastern Whitman County, most of Spokane County, and the foot-hill areas has suffered very little from winter injury. The Hard Red Winter Wheat Belt, with the exception of the Sprague, Cheney and Reardan areas, has suffered most from winter-killing. Only a few fields in the most important parts of this belt have been left intact, and these probably will

supply just about enough seed for next fall's seeding.

Private estimates have placed the total acreage of winter wheat in this State at around one-half million acres, which is considerably less than one-half normal.

Field operations in the Pullman area have not progressed very far because of intermittent rains.

So far no spring wheat has been sown by farmers.

#### OREGON

SHERMAN COUNTY BRANCH STATION, MORO (Cereal Agronomy, D. E. Stephens)  
(April 10)

Weather conditions in March and early April have been favorable for crops and for farm work in the Columbia River Basin of Oregon. The unusually heavy winter snowfall melted slowly early in April, and in the vicinity of Moro the moisture from this snow was absorbed by the soil with no run-off.

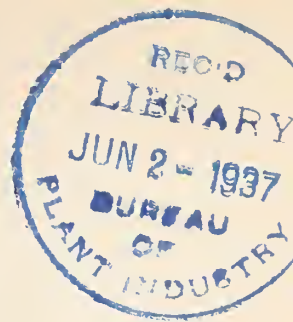
Winter wheat, all of which was sown late in the fall, did not emerge until about the middle of March. Although there has been no unusually cold weather, winter wheat is still backward in growth and as yet is only in the two-and three-leaf stages. There was very little winter-killing of fall-sown grain, but considerable reseeding has been necessary owing to failure to get stands from too deep seeding. The spring wheat acreage this year will be considerably above normal, with a corresponding decrease in the winter wheat acreage.

The total precipitation for the 7-months period, September 1, 1936, to March 31, 1937, was 5.92 inches, or 2.67 inches less than the normal for that period. Notwithstanding this, there is more moisture in the soil this spring in this vicinity than there has been for several years at this date. This is due to the fact that there was so little loss of the winter precipitation as run-off.

The total precipitation for March was 1.67 inches and for the first 10 days of April 0.53 inch. The lowest temperature in March was 25° on the 19th and the highest 59° on the 27th.

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## CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

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Vol. 29

May 10, 1937

No. 6

Personnel (April 26-May 10) and Field Station (April 16-30)

### PERSONNEL ITEMS

Mr. H. H. McKinney left Washington April 26 and, together with Dr. R. M. Caldwell and Mr. L. E. Compton, stationed at the Purdue University Agricultural Experiment Station, inspected wheat mosaic nurseries near Vincennes, Ind., and also mosaic-infested fields near Covington, Ind. In company with Dr. Benjamin Koehler, of the Illinois Agricultural Experiment Station, Mr. McKinney also inspected wheat mosaic nurseries in Clark, Mason, and Tazewell counties in Illinois. Mr. McKinney conferred with officials of the State agricultural experiment stations of Urbana, Ill., and Lexington, Ky. He returned to Washington on May 6.

Dr. S. C. Salmon left Washington May 8 to spend several weeks in Kansas, Colorado, Nebraska, Texas, Oklahoma, Missouri, Iowa, and Minnesota in the interests of wheat and weed research.

T. R. Stanton left Washington on May 4 for a trip in the Southeastern States in the interests of oat improvement. He will meet Dr. H. C. Murphy, stationed at Ames, Iowa, in Alabama and accompany him through northern Florida, Georgia, and the Carolinas. Mr. Stanton expects to return to Washington about May 22.

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### ERRATUM

In the article entitled "Influence of Certain Oat Varieties on Their  $F_1$  Progeny", which is listed under RECENT PUBLICATIONS in the Cereal Courier vol. 29, no. 5, April 25, 1937, the authors should be F. A. Coffman and Harland Stevens.

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FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins)  
(May 3)

The maximum temperature for April was 86°, the minimum 37°, and the average mean 66°.

The total precipitation of 1.50 inches occurred on 4 days and was 2.41 inches less than it was last year, and 2.16 inches less than the 27-year average for April.

The exceptionally dry weather in April made it impossible, in many instances on the Station and in commercial fields, to properly prepare the seedbed for rice. The dry condition of the soil at the time of seeding and the heavy crust that formed on the soil surface following rains caused irregular germination. A large part of the commercial crop sown in late March and in April had to be irrigated to soften the soil crust and aid germination.

Work on the Station has progressed nicely. Seeding operations were further advanced than usual by the end of April.

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL  
(Wheat Breeding, E. R. Ausemus) (May 5)

Winter wheat in the southern part of Minnesota survived the winter in good condition, although it is reported to be "patchy" in the southeastern part. There is considerable winter-killing in the field plots and nursery at University Farm. The State statistician reports approximately 350,000 acres of winter wheat in Minnesota, or twice the normal acreage, with an 80 percent crop prospect.

The cold, wet weather in April has delayed seeding of small grains although it has been favorable for pastures and grasses. Seeding of the field and nursery plots is being completed at University Farm today. The earlier seedings of spring wheat have emerged with good stands.

The rainfall from September 1, 1936, to April 30, 1937, was 9.29 inches, as compared with a normal of 12.92 inches, making a deficiency of 3.63 inches. For the period from January 1 to April 30, 1937, the rainfall has been 5.41 inches; the normal is 5.46 inches. The mean temperatures during the winter months, including April, were in general lower than normal, although there were no long periods of extremely low temperatures. The precipitation in April was 2.62 inches, as compared with a normal of 2.23 inches. The mean temperature was also about 2° below normal.

## TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins)  
(April 30)

Weather conditions in April were favorable for the growth of small grains. The precipitation was only 0.92 inch, which is 2.65 inches below normal. This was accompanied by rather low humidity and only 6 dews during the month. Temperatures were about seasonal; a maximum of 90° and a minimum of 32° were recorded. Strong south winds occurred on several days.

An excellent example of the spread of stem rust was observed. On April 12, 14, and 17 strong winds, averaging more than 10 miles per hour for a 24-hour period and reaching maximum velocities of 20 to 25 miles per hour, occurred. Precipitation was recorded on April 19, 20, and 21, followed by a heavy dew on the 22nd. Temperatures ranged from 55° to 85°. On April 30 stem rust pustules were found at several points in the nursery.

Leaf rust of wheat, which was first observed on March 31, has spread rather slowly because of the dry weather, infrequent dews, and clear skies. It appears now that only the most susceptible varieties will be injured by this disease. No rust has been found on oats.

Owing to ample subsoil moisture, small grains have made good progress in spite of the low precipitation in April. More precipitation will be necessary for spring-sown oats, but fall oats, barley, and wheat will mature with very little additional moisture. Barley is now fully headed and a record yield is indicated. Wheat and fall- and spring-sown oats are heading at present.

## OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (May 3)

The rank growth made by small grains in March and April has left them very subject to drought injury. Burned areas are becoming evident in the nursery. Cool weather during most of April undoubtedly helped much to prevent serious firing in the nursery. Most of the 20 varieties in plots on cropped land showed burning three weeks ago.

The lack of rain is evident throughout most of Woodward County. Firing is more serious on the heavier soils than on sandy land.

First heading notes were first taken in the wheat nursery on April 30. Early Blackhull, Nebraska No. 28, and Early Kanred were first headed on May 3. Missouri Early Beardless winter barley was first headed on April 29.

Maximum and minimum temperatures were 95° on the 16th and 23° on the 4th, respectively. The mean was 58°.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust,  
C. O. Johnston) (May 1)

April was a rather dry month in the vicinity of Manhattan. Fairly good rains fell during the first 10 days, but thereafter there was no rain of any consequence. Good rains fell in the eastern three tiers of counties and good local rains in some of the south-central counties. The western part of the State received little moisture, however, and much of the wheat in that section is in poor condition.

The temperatures for April were subnormal and high winds caused the top soil to dry out rapidly. Severe duststorms occurred on several occasions.

Despite the cold, dry weather winter wheat has made remarkable progress during the month and in some localities wheat is now beginning to joint. Winter wheat in the rust nursery has made very rapid growth and now has too much top growth for this time of year. There undoubtedly will be considerable lodging. In other experimental sowings and commercial fields the growth is not so rank and the crop appears to be a little late for this time of year.

Winter injury notes were taken on winter wheats in April and nursery labels were set for both winter and spring wheats.

Hypodermic inoculations with leaf rust were started in the rust nursery on April 19 and the first stem rust inoculations are being made today. Leaf-rust infections resulting from the earliest inoculations are excellent and are now beginning to sporulate. No natural infection of either leaf or stem rust of wheat has been observed in the vicinity of Manhattan and so far none has been reported in the State. To the southward, rust infections seem to be later than usual although a report from San Antonio, Texas, on April 28 states that there is an abundance of leaf rust and considerable stem rust on wheat in that locality.

FORT HAYS BRANCH STATION, HAYS (Cereal Agronomy, A. F. Swanson)  
(May 2)

Inadequate April rainfall, far below the expected normal, and high cold winds a week ago have caused serious deterioration in the winter wheat prospects in the vicinity of Hays. The report is unfavorable from Salina westward for all wheat seeded on cropped land. Wheat on fallowed land is still holding well. The outcome for the wheat crop of western Kansas is difficult to predict at this time, as all depends on immediate heavy rainfall.

An extra planting of all corn and sorghum varieties was made on May 1, which is a month ahead of what has generally be regarded as the optimum period. The seedbed is reasonably warm with moisture available for quick germination. The objective of this early planting is to take advantage of both the May and June rainfall which has generally always occurred even in droughty years.

The Boys and Girls Judging Contest held on April 23 was the largest on record. The attendance at the Stockmen's "Round-up" on April 24 was smaller than expected because of unfavorable weather in the way of high wind and dust.

#### NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (April 30)

For a period between April 10 and 22 the weather was warm and, with sufficient moisture available, winter wheat made phenomenal growth. Beginning on April 23, the weather turned much colder accompanied by high winds. The temperature went as low as 32° at Lincoln and on April 25 a light snow fell. The low temperature and the whipping by the wind caused some injury to the tips of grain leaves, and of course growth has again been retarded. During the last week it has been cloudy but very little rain has fallen. The total rainfall for April was slightly less than 1 1/4 inches, which is about half the normal.

Wheat in the eastern part of Nebraska is in good condition and is making fair growth. Sufficient moisture is available for the present. West of Lincoln the crop becomes poorer very rapidly. Only 20 miles west some fields show very definite signs of winter-killing. Reports from the western part of the State indicate that what little wheat is left is in very poor condition and suffering from lack of moisture and soil blowing. During the last few days light showers in this area should give temporary relief. From all information available, western Nebraska is suffering from lack of moisture as much as or more than any other section of the Plains.

From present indications harvest at Lincoln will be later than last year and probably a little later than average.

#### NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (May 1)

The weather during the last half of April was not very favorable for field work on account of frequent high winds and dust storms.

Seeding of the wheat nursery in the main field (about 2,400 rod rows) which began April 15 was completed April 21. The wheat increase plots and rows were sown April 22 and 23.

Seeding of the flax 17-foot row nursery was started April 29 but was interrupted by rain, and the ground was too wet for seeding today.

The winter-wheat nursery has shown no change during the past two weeks, but moisture and temperature conditions have not been favorable for growth during this time.

Some emergence was noted April 26 in wheat, oat, and barley plots and wheat nursery rows sown April 15, 16, and 17, but stands are still uneven and incomplete.

An effective rainfall of 0.48 inch during the last three days in April, accompanied by almost continuous cloudy weather, practically insured complete germination of all seed sown to date.

The total precipitation during the last half of April was 0.51 inch. The maximum temperature was 73° on the 21st and the minimum 31° on the 24th.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)  
(April 30)

Seeding has progressed at the Substation and in this vicinity without much interruption from the weather except for several dust storms that have dried out the soil. Replicated field plots of cereal varieties were seeded last week, as was most of the varietal nursery. Some miscellaneous nursery seeding remains to be done as well as field seeding of flax, proso, and corn varieties.

The total precipitation for the month has been about 0.80 inch, most of which came early in the month. The moisture in the soil is barely sufficient to germinate the seed but showers are imminent today.

Winter wheat in both field plots and nursery is practically dead. Rye has a thin stand.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO  
(Wheat Improvement, G. S. Smith) (May 3)

Planting at Fargo has been held up because of the rain and poor drying conditions. More than 0.01 inch of precipitation fell on each of 10 days in April and the total for the month was 4.69 inches. Only two days were recorded as "clear". Temperatures were approximately normal. The durum yield nursery was sown on the 22nd just before a heavy wet snow and is sprouting well though not quite emerged.

No experimental planting at Langdon has been possible yet. Precipitation has been about the same as at Fargo but due to the lighter soil it is hoped that seeding may be begun there in a day or two while at Fargo it is going to be pretty sticky under the surface for several days.

Moisture conditions are very good in the eastern part of the State but the subsoil will not be much affected unless frequent and heavy rains continue during the spring months.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin)  
(May 1)

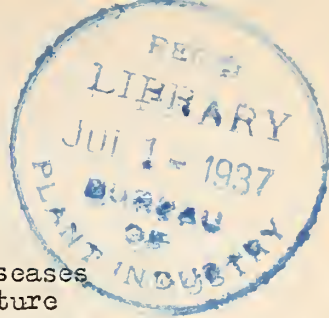
All spring-sown cereals emerged with good stands about the last of March. The weather in April, however, was unusually wet and cold, so plant growth was greatly delayed. Wheat sown last fall is now about 8 inches high and profusely tillered. Where stands of winter wheat are not too uneven, the yields will be greater than those of spring wheat unless there is ample precipitation late in the spring. Farmers are worrying because weeds in the spring grains are getting an even start with the crop.

The sowing of canning peas in the higher altitudes has been delayed by the late spring, but sowing now is about completed.

The total precipitation for April was 3.61 inches compared with an 8-year average of 1.28 inches.

## CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)



Vol. 29

May 25, 1937

No. 7

Personnel (May 11-25) and Field Station (May 1-15)

### PERSONNEL ITEMS

Dr. B. B. Bayles left Washington May 15 for his usual summer trip to inspect wheat experiments in Arizona, California, Oregon, Washington, Idaho, and Nevada. He will study varieties and hybrids in cooperative breeding nurseries and observe wheat conditions in general.

Mr. C. C. Fifield will attend the meetings of the American Association of Cereal Chemists to be held in Minneapolis May 24 to 28 and of the Pacific Northwest Branch of the American Association of Cereal Chemists to be held at Portland, Oreg., from June 10 to 12. He will also confer with representatives of commercial mills and bakeries with reference to wheat quality, discuss the co-operative wheat program, and make plans for future research. His itinerary will include Utah, Washington, Oregon, Montana, North Dakota, and Minnesota.

Dr. M. T. Jenkins spent several days in Ohio, beginning May 11, in the interests of cooperative corn experiments.

Dr. M. N. Pope and Mr. J. W. Taylor spent four days beginning May 18 in looking over cooperative barley and wheat nurseries at Appomattox, Blacksburg, Fishersville, and Glade Spring, Virginia, and Kearneysville, West Virginia.

Dr. M. M. Rhoades arrived in Washington May 21 from Ames, Iowa, his former headquarters, to take up headquarters at the Arlington Experiment Farm, Arlington, Va., in connection with corn investigations.

Mr. T. R. Stanton returned on May 20 from a trip into the southeastern States in the interest of oat improvement. He visited the Alabama State Seed Laboratory at Montgomery on May 5 and conferred with Mr. L. N. Allen, Seed Analyst, concerning the identification and purity of seed of red oat varieties. Mr. Allen is greatly interested in doing everything possible to improve the quality of oats sold for seed in Alabama. On the Kilby Prison Farm near Montgomery Mr. Allen is growing small plots from about 250 lots of rye that were sold in the State in the fall of 1935 and 1936 for seed. A considerable percentage of these lots of seed represented the Rosen, Dakold, and other northern ryes and had made a very unsatisfactory growth as compared with the standard Abruzzes. It is an excellent demonstration of using seed of varieties that are distinctly not of their range of adaptation.

An extensive winter oat nursery is being conducted by Mr. J. D. Warner, agronomist, at the North Florida Experiment Station, Quincy. He has isolated some new lines of the Alber variety, which seems to be of promise under conditions in northern Florida. The original Alber oat is being increased for distribution to farmers in the fall of 1937. Crown rust was very prevalent at Quincy, and all susceptible varieties and strains were being rather seriously injured. Mr. Warner started his oat breeding in 1934 and already has made much progress in the development of better oats for northern Florida. Certain hybrid strains involving Victoria, received from Experiment, Ga., appeared unusually promising at Quincy from the standpoints of resistance to crown rust and desirable agronomic characters.

At Gainesville some of the hybrid oat material furnished by this Division appeared promising. A heavy infection of crown rust was present and it was observed that many selections from crosses on Victoria and Bond were highly resistant. On the whole, Mr. J. P. Camp is making marked progress in the development of oats better adapted to Florida conditions.

At Tifton, Ga., on the Coastal Plain Experiment Station, crown rust likewise was very prevalent, and susceptible varieties such as Fulghum, Coker 32-1, Fulgrain, etc., were heavily infected, and the yields probably will be reduced from 50 to 70 percent. However, the Red Rustproof strains such as Appler, Bancroft, Hastings Hundred Bushel, Ferguson no. 922, etc., were being less injured by crown rust and will make yields around 40 bushels to the acre. These Red Rustproof strains are not resistant to crown rust but are so called "late rusters." Many selections from crosses of Victoria and Bond on Fulghum and Victoria on Red Rustproof were showing considerable promise at Tifton. It is possible that selections from the cross of Victoria x Nortex may eventually prove of greatest value.

At Experiment, Ga., the effect of aphid injury to oats was marked. A considerable portion of the oat nursery had been almost completely destroyed by this pest. An interesting observation was made in that a few strains appeared to show high resistance to the attacks of aphids. In addition to the growing of many promising new lines of oats, Mr. Bledsoe also is conducting extensive wheat, rye, and barley nurseries. Segregates from a cross of Victoria x a Coker Fulghum when crossed on Red Rustproof (Ga. No. 174) has produced some of the most promising hybrid material at Experiment.

A visit to the Gilmore plantation near Sandersville, Ga., was of much interest in that large acreages of wheat and oats have been grown now for several years with fair success. On the three plantations of Mr. Thomas W. Gilmore, 800 and 400 acres of wheat and oats, respectively, were being grown. Coker 32-1 and Fulghum oats were showing heavy infection of crown rust with serious reduction in yield. The wheat, which was of the Redhart variety, also was badly infected with leaf rust and will produce very unsatisfactory yields of grain of poor quality. Fulgrain (Coker 33-19) showed considerable crown rust infection but apparently is a later rusting type than Fulghum or Coker No. 32-1 and will produce from 35 to 45 bushels to the acre. This oat appeared to be practically 100 percent resistant to the Fulghum and Red Rustproof smuts.

At Hartsville, S. C., a world of interesting new hybrid material for the development of crown rust-resistant strains of fall-sown oats was observed. Mr. George J. Wilds, head plant breeder of the Coker's Pedigreed Seed Co., is crossing extensively on Victoria and also on the Capa variety. Certain selections from mass seed of the Lee x Victoria cross, sent from this Division, appeared rather promising in the nurseries at Hartsville this year. About 11,500 plant or head rows of oats and 3,000 of winter wheat in addition to many thousand 15-foot rows are being grown.

Dr. G. K. Middleton has made marked progress in the breeding of better oats for central North Carolina at the Piedmont Branch Station, Statesville, N. C. Certain selections from the Lee x Victoria and Hairy Culberson x Victoria crosses appeared to be of promise under the conditions at Statesville. The Lee variety is grown by many farmers in the Statesville area and apparently is giving excellent results. No smut was observed in the variety because of an extensive campaign for the control of oat smut by seed treatment.

On the whole, both Dr. H. C. Murphy and the writer were favorably impressed with the marked advance in oat improvement work in the southeastern States during the past few years. It is evident that the introduction of the Victoria, Bond, Alber, and Berger varieties has resulted in a new interest in breeding better oats for the South. The crown rust resistance of Bond appears to be slightly superior to that of Victoria, although segregates from crosses on Bond appear to carry the low tillering capacity of that variety, which is objectionable. On the other hand, the additional factors for yield which appear to be carried by Victoria may result in more productive varieties coming from crosses on Victoria than from crosses on Bond.

It appeared that more oats than usual were being grown on farms along the highways traveled in Alabama, Florida, and the Carolinas. Most of the oats except in the extreme South where crown rust was making heavy inroads, were in excellent condition and a good crop was in prospect. The influence of soil conservation programs apparently is resulting in the growing of more oats both for feed and as a winter cover crop. Furthermore, the high cost of grain feeds in general has had the effect of stimulating farmers to produce more of their feed at home.

Mr. Stanton has received word from Mr. L. W. Osborn, Extension Agronomist at Stillwater, Okla., that all strains of winter oats came through the winter with wonderful vigor, and that interest in winter-resistant strains is rapidly on the increase. Mr. Osborn reports that a grower in Oklahoma County has had excellent results with Culberson oats.

Mr. J. W. Taylor inspected experimental wheat and barley nurseries in North Carolina and Tennessee from May 11 to 15. He was accompanied by Dr. G. A. Wiebe on part of this trip.

Dr. G. A. Wiebe left Washington May 11 to observe barley experiments in North Carolina, Tennessee, Arkansas, Texas, Oklahoma, Kansas, Missouri, Illinois, Wisconsin, and Minnesota. He will confer with personnel of the Division and of agricultural experiment stations on cooperative barley research.

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# RECENT PUBLICATIONS

Book Review by J. H. Martin of "The Cultivated Races of Sorghum." by J. D. Snowden. London: Adlard & Son, 1936. Pp. 274. Illustrated. Bot. Gaz. 98(3): 621-623. March 1937.

A Seed Dropper for Cereal Nursery Rows. (Note) Jour. Amer. Soc. Agron. 29(5): 419-420, fig. 1. May 1937. L. C. Burnett. (Cooperation between the Iowa Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Barley and Malt Studies. II. Experimental Malting of Barleys Grown in 1935. J. G. Dickson, H. L. Shands, A. D. Dickson, and B. A. Burkhart. Cereal Chem. 14(3): 316-327, figs. 1-5. May 1937. ("Based on cooperative investigations between the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station. The cooperative investigations include the agricultural experiment stations of California, Colorado, Illinois, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, Ohio, and South Dakota where the uniform barley varietal series are grown each year.")

Seed Treatment Experiments with Oats Naturally and Artificially Inoculated with Smuts. R. W. Leukel. U. S. Dept. Agr. Tech. Bull. 568, 16 pp. May 1937.

Echinulation of Chlamydo spores and the Pathogenicity of a Previously Undescribed Physiologic Race of Sphacelotheca cruenta. H. A. Rodenhiser. (Phytopath. Note) Phytopathology 27(5): 643-645. May 1937.

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## MOTOR VEHICLE OPERATORS' PERMITS

May 25, 1937.

As new employees are frequently entering the service, it is well to remember that all persons who will have occasion to operate Government-owned motor vehicles on public highways, to whom Department permits have not been issued, should request them at once.

A request for Department permit should show number and date of State driver's permit and the character of the examination required to obtain a permit. Also, the kind and amount of Liability Insurance carried when driving Government car, with the name of the Company and date of policy.

The man in charge should certify to the applicant's ability to drive an automobile satisfactorily and that he is familiar with local traffic regulations.

No Department operator's permit will be issued without the above information.

H. S. SMITH,  
Jr. Administrative Assistant.

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TRANSPORTATION---NONPURCHASE OF ROUND-TRIP TICKETS---OFFICERS AND  
EMPLOYEES EXCESS COST LIABILITY

As the Standardized Government Travel Regulations require the purchase of round-trip tickets whenever practicable and economical in connection with official travel and provide a procedure for the disposition of the unused portion of the ticket, an employee contemplating round-trip travel on official business should procure the required transportation by tendering to the ticket agent a transportation request calling for the reduced round-trip fare between the points involved. If he fails to do so, he will be held responsible for the excess cost of the transportation used over the round-trip fare, notwithstanding he was informed by the ticket agent that no reduced round-trip fare was available and was uncertain whether he would have use for the return ticket.

Acting Comptroller General Elliott to the Secretary of Agriculture,

December 5, 1936. (A-70897).

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FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

GEORGIA

GEORGIA COASTAL PLAIN EXPERIMENT STATION, TIFTON (Corn Breeding, H. S. Garrison) (May 17)

Weather conditions were not altogether favorable for crops in this locality during the first half of May. Heavy rains (3.25 inches) and wind on May 4, 5, and 6 caused considerable lodging of small grains and washing out of corn and cotton. While very little damage was done on the agronomy plots, many farmers had to replant their corn and cotton fields.

Corn planting on the breeding plots was completed on April 26. Earlier planted corn is all thinned and a good stand was obtained as there was no early insect damage.

Mr. T. R. Stanton and Dr. H. C. Murphy visited the Station on May 12 and 13 to inspect the oats nursery. Because of the heavy infestation of crown rust, the first in 4 years, they were able to eliminate about 90 percent of the material in the nursery.

Early varieties of both oats and wheat have been harvested. Yield of Red Rustproof types of oats are very promising as the spring has been favorable to the production of rust resistant oats. Yields of wheat are greatly reduced because of both stem and leaf rust.

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (May 17)

Weather conditions during the first half of May were favorable for the growth of small grains. The precipitation was 1.77 inches. Temperatures were cool with a temperature of 32° recorded on the night of May 13.

Wet weather and cool temperatures have delayed the seeding of small grains, particularly in the western and northwestern part of the State. Seeding is between 10 days and two weeks later than usual in the Red River Valley. Moisture is present down three feet in the soil at the Northwest Experiment Station, located at Crookston, Minn., which means that local rains will be required to make a crop this year.

Spring grains, where sown, are making excellent growth.

Corn is now being planted at University Farm.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (May 15)

Weather conditions during the first half of May continued favorable for small grain crops, although additional precipitation is at present seriously needed by spring oats. A shower of 0.39 inch was recorded on May 1 and small showers on four other days, bringing the precipitation to 0.75 inch. In addition to the showers, dews occurred on seven mornings, providing favorable conditions for the spread of rust. Temperatures have been low for this season, with north winds on eight days.

A survey of the rust situation in north Texas was made this week. Fields were visited in four counties in this area. Leaf rust of wheat is very light, many fields having only a trace of rust even at this late date. Stem rust seems to be general over the area visited. In most instances the disease seems to be in the first generation, appearing as single pustules on the midrib of the leaf. The wheat crop is well along towards maturity, so it is doubtful if much damage will be done in this area. It is possible with the general distribution of rust that some inoculum may be built up for spread to other areas. A survey of oat fields has shown no crown or stem rust so far, but a few pustules were found on the Markton variety at the Substation today.

Barley in the area is ripening rapidly. Early varieties will be harvested from the nursery in a few days. Fall sown oats are ripening. The first 1937 oats were sold on the Dallas market on the 15th having been grown in southern Denton County. No doubt they were Fulghum oats. The wheat acreage in northern Texas is unusually high and record yields are indicated. Some of the finest wheat ever seen was observed in the vicinity of Sherman, Texas. Yields of 30 bushels per acre on large acreages are indicated.

A portion of the Panhandle area of Texas received good rains last week, which should improve wheat prospects in that area.

Dr. H. C. Murphy visited the Substation on May 1.

#### KANSAS

FORT HAYS BRANCH STATION, HAYS (Cereal Agronomy, A. F. Swanson)  
(May 17)

The April drought has continued into May. The rainfall to date for May is 0.83 inch. Wheat on cropped land in the vicinity of Hays and particularly on the Cereal Project is almost beyond recovery. Wheat in the western third of Kansas is spotted. In some areas the crop prospects are good to fair, in other areas, where wheat was sown on land with limited moisture last fall, a crop failure is apparent. Wheat on fallow is still holding well on the Station. On fallow, Early Blackhull and similar types are in full head, while later varieties are just coming into head.

The first regular planting date of sorghums is being made today. The first replication of the nursery has been planted. In former years we have generally "nosed out" the fall blanked listed rows for planting both sorghum and corn, after such rows had been thrown in with a "ridge buster." This year it has been necessary to split the ridges in order to find moisture for quick germination. Sufficient moisture is available under the old ridges to carry the row crops for some weeks.

#### NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (May 17)

Climatic conditions at Mandan have so far appeared essentially like a repetition of the season of 1936. Only traces of precipitation occurred during the first half of May. There was sufficient moisture up to the end of April to insure satisfactory germination of most seed sown up to about May 5.

A heavy frost on the night of May 12, with a recorded temperature of 25°, froze oats, barley, and many wheat varieties practically to the ground and killed many flax plants that had emerged. Differences in frost damage are very striking among the wheat varieties. Winter wheat, durum wheat (especially Mindum), and some common spring wheat varieties with winter wheat parentage show little or no frost damage.

The flax varietal plots were sown May 5. A few plants that had emerged by May 12 were frozen but most plants just below the surface apparently were undamaged and stands appear good at this time.

Seeding of the flax rod row nursery was started April 29 but was interrupted by rain and was not resumed until May 3. Most of the flax nursery material was sown in the next few days. Flax sown April 29 emerged with fair stands but was severely damaged by frost. A crust over the surface following the rain also prevented many plants from reaching the surface. Emergence of flax sown in nursery rows in May is uneven and much of the seed sown has had insufficient moisture for germination. No further seeding of flax is contemplated unless there is sufficient rainfall to insure prompt germination.

The maximum temperature was 80° on the 6th and the minimum 25° on the 12th.

#### DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (May 15)

Dry weather with rather frequent dust storms has prevailed since the middle of April. The principal rain during that time was 0.18 inch on May 10. This was followed by a dust storm that lasted about 36 hours and injured grain in this vicinity by soil blowing. On the experimental plots and nursery the soil was left rather rough and cloddy so that only slight damage occurred from the wind. Frosts occurring during the past week injured a few tender barley varieties in the nursery.

Nearly all cereal seedings have emerged with fairly good germination despite dry soil conditions. It is hoped that rain will come soon and permit the seeding of flax and corn varieties.

The winter nursery was plowed up after counting the few surviving plants in the winter-hardiness nursery. The stand of grain in the field plots of winter wheat also is extremely thin and probably will have to be plowed to destroy weeds.

#### MONTANA

#### AGRICULTURAL EXPERIMENT STATION, BOZEMAN (Wheat Improvement, R. H. Bamberg) (May 20)

Spring seeding has been somewhat delayed because of a rather late, wet spring. Spring wheat bunt nurseries were seeded on May 5 and 6 and yield nurseries on May 12 and 13. The earlier seedings had emerged by May 16. Precipitation on the 18th and 19th should hasten emergence of all late seedings.

Winter wheats came through with very little winter-killing and seedings which were only sprouted in the fall before freezing up now have good stands. There was very little differential killing in the winter-hardiness nursery.

At Moccasin the spring wheats were up to excellent stands on May 16 but were being whipped severely by blowing soil. Precipitation there had amounted to only a few hundredths since May 1 and rain was needed badly. There was only about one-fourth of a stand of oats.

Winter wheat had suffered severe winter injury at Moccasin, particularly in the nursery rows. Much of the nursery had 90 to 98 percent killing but the plots mostly 10 to 25 percent.

OREGON

SHERMAN COUNTY BRANCH STATION, MORO (Cereal Agronomy, D. E. Stephens)  
(May 18)

A cold, wet spring interfered with spring work in the Columbia River Basin. Seeding of spring grains was nearly two weeks later than normal. Winter wheat has made very slow growth and much more reseeding was required than at first seemed necessary. Stands of winter wheat are spotted, and in depressions, or where there were deep snow drifts, the plants are small in size and yellow in color. Nitrate determinations show practically no nitrates in these locations, with ample nitrates in the soil of adjacent areas where the wheat plants look normal. Wire worms have done much damage in thinning stands of winter wheat and are now working on the spring grains. Spring grain also is showing nitrate deficiency in spots.

The weather has been cool and cloudy most of the time. There has been no precipitation since April 15. Rain and warm weather would doubtless greatly benefit our grain crops, all of which are exceedingly backward in growth for this time of year.

The total precipitation for April was 1.67 inches, all which fell prior to the 16th. So far there has been no precipitation of consequence in May. The lowest temperature this month was 29° on the 6th.

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ANNUAL REPORT OF PUBLICATIONS AND MANUSCRIPTS

DIVISION OF CEREAL CROPS AND DISEASES

CALENDAR YEAR 1936

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In the calendar year 1936, 132 articles, papers, and abstracts were published in the various series of Department publications, in publications of cooperating State agricultural experiment stations, in private journals, or as mimeographed unnumbered publications of the Division. In the same year 114 manuscripts were submitted for publication. There remain unpublished, as of December 31, 1936, 37 manuscripts submitted in 1936, 1 submitted in 1935, and 1 submitted in 1934.

GENERAL OR MISCELLANEOUS

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Meier, Fred C. Effects of Conditions in the Stratosphere on Spores of Fungi. Natl. Geogr. Soc. Contributed Tech. Papers. Stratosphere Series No. 2, pp. 152-153. 1936. (Cooperative investigations, Bureau of Plant Industry and Weather Bureau, U. S. Department of Agriculture.)

Rogers, Lore A., and Meier, Fred C. The Collection of Micro-Organisms above 36,000 Feet. Natl. Geogr. Soc. Contributed Tech. Papers. Stratosphere Series No. 2, pp. 146-151, 2 figs. 1936. (Cooperative investigations, Bureau of Plant Industry and Weather Bureau, U. S. Department of Agriculture.)

Snelling, R. O. A Convenient Label Stake for Nursery Plats. (Note) Jour. Amer. Soc. Agron. 28(2): 161-162, fig. 1. February 1936. (Cooperation between the Division of Cereal Crops and Diseases and the Oklahoma Agricultural Experiment Station.)

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Kempton, J. H. Maize as a Measure of Indian Skill. Univ. New Mexico Bull. 296, pp. 19-28. October 15, 1936. The Univ. Press, Albuquerque, N. Mex.

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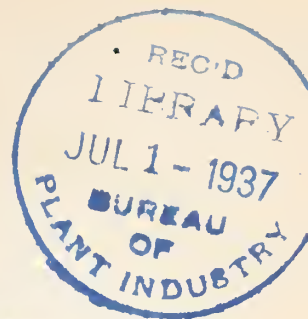
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## CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)



Vol. 29 June 10, 1937 No. 8  
Personnel (May 26 - June 10) and Field Station (May 16 - 31)

### PERSONNEL ITEMS

Mr. Charles E. Chambliss left Washington on May 29. He will inspect and study wild rice marshes in Minnesota and Wisconsin in cooperation with the Office of Indian Affairs for the purpose of increasing the production of wild rice on Indian reservations.

Mr. F. A. Coffman left Washington on June 10 to visit points in Delaware, New Jersey, New York, Pennsylvania, Ohio, Illinois, Indiana, Missouri, Kansas, Colorado, Nebraska, and Iowa in the interests of oat breeding. He will consult with Federal and State employees concerning the breeding program and record data on cooperative experiments and in commercial fields.

Dr. Harry B. Humphrey will leave Washington on June 11 for points in Kentucky, Arkansas, Michigan, Ohio, and Colorado to discuss with Federal and State workers the cooperative rust research program and to read uniform rust nurseries.

Dr. A. G. Johnson left Washington on June 5 to take data on cooperative flag smut experiments and confer with personnel of the Division and of the Kansas Agricultural Experiment Station

Mr. C. H. Kyle will leave Washington June 11 for Tifton, Ga., where he will select, hand-pollinate, and take notes on corn. He will also go to Experiment, Ga., and to points in Florida, South Carolina, and North Carolina to examine corn experiments.

Mr. T. R. Stanton left Washington on May 30 to travel in Missouri, Arkansas, Oklahoma, Texas, New Mexico, Arizona, California, Oregon, Washington, Idaho, Montana, Wyoming, Nebraska, South Dakota, and Iowa to inspect and study cooperative experiments with oats. He will also confer with officials of State agricultural experiment stations regarding oat research.

### RECENT PUBLICATIONS

Distribution of the Varieties and Classes of Wheat in the United States in 1934. J. Allen Clark and K. S. Quisenberry. U. S. Dept. Agr. Circ. 424, 68 pp., 64 figs. April 1937.

Barley's Future. (Thru America's Grainfields Number 5) Harry V. Harlan. Successful Farming 35(4): 14, 94-95. April 1937.

The Time Factor in Pollen-Tube Growth and Fertilization in Barley. Merritt N. Pope. Jour. Agr. Research 54(7): 525-529, pls. 1-2, fig. 1. April 1, 1937. (G-1048)

Selenium Absorption by Crop Plants as Related to Their Sulphur Requirement. Annie M. Hurd-Karrer. Jour. Agr. Research 54(8): 601-608. figs.1-4. April 15, 1937. (G-1050)

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#### COMMITTEE ON MANUSCRIPTS

Mr. J. H. Kempton has been appointed as a member of the Committee on Manuscripts of this Division. The other members of the Committee were listed in the issue of the ~~Carroll~~ Courier of March 10, 1937.

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#### FULL NAME ON VOUCHER

Attention is again directed to the fact that reimbursement and pay roll vouchers will not be accepted by the Division of Accounts without either the first or middle given name in full. This requirement is overlooked by many, necessitating return of vouchers and consequent delay.

H. S. Smith  
Jr. Admin. Assistant.

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#### FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

#### ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice Production and Improvement, C. R. Adair) (June 3)

Weather conditions this spring have been unfavorable for rice seedling. The average date of seeding of commercial fields as well as of Station plots was 10 days to two weeks later than normal. However, the crop is coming along fine at this time. Most of the rice on the Station is up to a good stand. The varietal experiments in field plots and nursery rows are doing especially well. Some of the hybrids and selections, which were sown later, are not doing so well but it now looks as though the stand will be fairly good.

The precipitation in May was 5.62 inches, nearly all of which fell before the middle of the month on eight days. The temperature was low during the first part of May but high the last few days. The maximum daily temperature was over 90° the last seven days in the month. The highest temperature of the month was 95.5° which was recorded May 31. The lowest temperature was 50.0° on the fifth.

The winter oat acreage was high in this section this year. There were good prospects for high yields until about the time the oats were fully headed. At that time there was a serious outbreak of army worms, particularly in the southern part of Arkansas County and in a few fields in other parts of this section. The total oat crop was reduced about 25 percent by this pest. Nearly all of the winter oats have been harvested.

Mr. G. H. Banks, assistant director in charge of this Station resigned, effective May 31. His successor has not been appointed. Mr. Dale McGregor, formerly assistant to Mr. Banks, is acting in charge.

## IOWA

AGRICULTURAL EXPERIMENT STATION, AMES (Crown Rust of Oats, H. C. Murphy)  
(May 31)

On May 22 the writer completed a four-weeks trip during which he drove through the following States in the order named: Missouri, Arkansas, Oklahoma, Texas, Louisiana, Mississippi, Alabama, Florida, Georgia, South Carolina, North Carolina, Tennessee, Kentucky, Indiana, Illinois, and Iowa. Rust readings were obtained on the wheat and oat varieties included in uniform cereal rust nurseries growing at cooperative experiment stations in the more southern and southeastern of the States mentioned. The primary purpose of the trip was to observe the reaction to crown rust of numerous new oat hybrid selections grown cooperatively at a number of experiment stations. Mr. T. R. Stanton accompanied the writer during the travel in Alabama, Florida, Georgia, South Carolina, and North Carolina.

Going south from Ames, Iowa, by way of Fayetteville, Ark., a trace of crown rust infection was first observed near Denton, Texas, on May 29. At College Station, Texas, approximately 200 miles south of Denton, the infection of crown rust on April 30 was so heavy that extremely susceptible oat varieties were being killed. Likewise, crown rust infection was very severe at Baton Rouge, La., Quincy and Gainesville, Fla., Tifton, Ga., and Hartsville, S. C. At all of these stations the rust started in January, which was unusually warm. Cool weather in March and April inhibited the initiation and development of crown rust in slightly more northern points such as Denton, Texas, Calhoun, La., State College, Miss., Statesville, N. C., and Knoxville, Tenn., where only a trace of infection was observed. A moderately heavy infection was observed at Experiment, Ga. On the return trip to Ames, Iowa, the last crown rust infection was observed on May 20 near the Tennessee-Kentucky line north of Knoxville, Tenn. Stem rust of oats was observed at only three locations during the entire trip; single restricted infection centers were observed at College Station, Texas, and Baton Rouge, La., while at Tifton, Ga., there was a fairly general distribution throughout the oat nursery.

Leaf rust of wheat was observed first on April 27 in southeastern Oklahoma with a trace of infection. At Denton, Texas, the infection averaged approximately 10 percent. The distribution and prevalence of leaf rust on wheat throughout the area observed was very similar to that already described for crown rust except that the distribution extended farther north. A trace of leaf rust was last observed on May 22 in southeastern Iowa.

Stem rust of wheat was found only at two locations. Two rather restricted infection centers were observed on April 30 at College Station, Texas, while at Tifton, Ga., on May 12, the infection averaged at least 90 percent in the field plots, and stem and leaf rust together had caused an estimated loss of 90 percent in the yield of the wheat plots. Apparently the only reason for absence of a uniformly heavy infection of stem rust on wheat and oats similar to that of leaf and crown rust was the absence of initial inoculum.

Stem rust on either wheat or oats is not often serious in the Southeastern States, while leaf and crown rust are quite frequently direct limiting factors for successful wheat and oat production. The same condition does not exist in the South-Central States, where either stem, leaf, or crown rust, or all, may be limiting factors.

Real progress is being made in the development of oat varieties resistant to crown rust and smut and adapted for the different southeastern and south-central States. By crossing the disease resistant Victoria and Bond with the local, well-adapted, high-yielding varieties, resistant hybrid selections are now being obtained that appear very promising. Either the Victoria or Bond type of resistance were affording ample protection from crown rust this year. Victoria was completely resistant to smut while Bond appears to be slightly susceptible to certain of the Red Rustproof strains.

## MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Brooding, E. R. Ausemus) (June 4)

Weather conditions in May have been favorable for the growth of small grains. The precipitation during the last half of May was 3.62 inches and the total for the month was 5.39 inches. The normal precipitation for May is 3.67 inches. Temperatures have been cool except for the last three days of the month. The maximum temperature was 88° on the 29th and the minimum 45° on the 16th and 19th.

Both leaf and stem rust from artificial inoculation were observed in wheat nurseries on May 31. Winter wheat is in the boot stage. Spring wheat is making an excellent vegetative growth.

Rains have occurred over the entire State and all small grains are in good condition.

Rains have delayed corn planting at the Station for a period of a week to 10 days.

## TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (June 1)

There was lack of effective precipitation in May causing serious damage to spring sown oats, and strong, continuous south winds prevailed throughout the last half of the month. The total precipitation was 1.00 inch, the largest amount received at one time being 0.39 inch. This makes a deficiency of 3.61 inches. This low precipitation was accompanied by very high evaporation from a free water surface. The total for the month was 7.029 inches which is an all time record, not only for the month of May, but for any month since the establishment of the Station. Temperatures were slightly above normal for the month, while the mean maximum was the highest since 1927. With the exception of May 23, strong south winds have blown both day and night since May 15. The wind run for a 24-hour period ranged from 114 to 247 miles per hour.

Owing to the drought all small grains have matured rapidly and at this date harvest of small grains, with the exception of spring oats, is nearly completed. This harvest probably is a week earlier than normal. The early harvest as well as the drought have been favorable in the case of wheat because stem rust developed rapidly during the first half of the month. Because of showers on nine days and dews on six additional days rust was able to spread in spite of the otherwise droughty conditions. Stem rust damaged grain to some extent in this area, and had harvest been extended to the normal date, heavy damage would have resulted. The writer made a hurried trip to Amarillo, Texas, on May 26. Rust was observed in fields throughout the area but except in the vicinity of Denton, the amount of rust was very small. Harvest is now under way throughout northern Texas as far west as the high plains, so no further spread may be expected. In the vicinity of Denton, stem rust reached percentages of 60 or more and farmers were quite concerned over the situation before harvest.

From observations made on the trip to Amarillo as well as from reports by county agents and by Dr. Quisenberry, after a survey of wheat in this area, there seems to be an unusual amount of bunt in farmers' fields this season. Loose smut damaged wheat in this immediate vicinity.

Only a trace of natural infection of crown and stem rust of oats has been found and as oats are rapidly drying up, no appreciable amount of rust may be expected. Fall sown oats in this area matured a good crop but spring sown oats are in most instances so short and poor that difficulty will be encountered in harvesting them.

Visitors during the month included, Dr. K. S. Quisenberry, Dr. S. C. Salmon, Mr. C. O. Johnston, Dr. G. A. Wiebe, and Dr. P. C. Mangelsdorf, R. E. Kasper, and E. S. McFadden.

## OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger)(June 1)

A gentle rain of 1.33 inches on May 29 broke a persistent drought and makes sorghum planting possible. The first "date" of broomcorn was planted June 1.

The precipitation for May was 2.37 inches. The maximum temperature was 99° on the 21st and the minimum 45° on the 5th.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (June 2)

Recent rains will help spring barley and oats and will increase the test weight of the later varieties of winter wheat. Early winter wheat and barley varieties are ripe and the earliest of them were harvested on May 29. The yield and test weight of these promise to be low.

Farm fields in this locality vary widely in appearance, a few giving promise of 18 to 20 bushel yields. However, members of the Oklahoma Feed and Grain Association, at a recent meeting held here, estimated that the wheat in Woodward County would average about 7 bushels per acre. Wheat south and southeast of Woodward is decidedly better than that north and west of here. Practically no wheat will be produced in the western two-thirds of the Oklahoma Panhandle this year. The State is expected to produce between 40 and 50 million bushels.

## KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (May 28)

The winter wheat crop in Kansas deteriorated rapidly in the central part of the State during the first half of May. Drought injury, which had earlier been acute in the western third of the State, gradually progressed eastward, invading the heavy producing central counties. Wheat, which in many localities in central Kansas had given promise of an excellent crop up to May 1, deteriorated rapidly thereafter, owing to a shortage of sub-surface soil moisture and absence of rains. The estimated yield for the State, given as approximately 174 million bushels on April 10, shrank to about 162 million bushels on May 10. Rain has fallen in many localities since May 20, however, and some of the deterioration has been arrested.

Wheat in the rust nursery is in excellent condition and satisfactory infections of both leaf rust and stem rust have been obtained. Recent rains have favored the increase and distribution of rusts in the experimental plots.

On a recent trip through northern Texas, Oklahoma, and central Kansas it was noted that leaf rust on winter wheat in general fields was unusually light. Traces of stem rust were found in all fields examined between Perry, Okla., and Denton, Texas, during the period from May 16 to 24. Recent rains in that area may result in considerable stem rust infection before harvest, but there does not seem to be a heavy enough concentration of stem rust at any point to initiate a severe epidemic. There is some danger of stem rust injury on late wheat in Kansas, especially where the crop was retarded by drought and partially recovered owing to late rains. Traces of stem rust were found on wheat in south central Kansas by Dr. John H. Parker on May 23. It was observed that there is a serious amount of loose smut in nearly all fields of winter wheat in Texas and Oklahoma. Many fields have 5 to 10 percent smut, and counts in one badly smutted field in Oklahoma revealed an average of 13.8 percent infection.

Dr. R. J. Haskell was a Station visitor on May 5 and Dr. K. S. Quisenberry and Dr. S. C. Salmon visited the Station on May 14 and 15.

FORT HAYS BRANCH STATION, HAYS (Cereal Agronomy, A. F. Swanson)  
(June 2)

The May drought was too prolonged and wheat on cropped land in the vicinity of Hays will be more or less a failure. This situation applies to a considerable area in the western third of the State. Elsewhere in Kansas wheat is reported to be in a favorable position.

Two inches of rain has fallen during the last three days, making conditions favorable for row and feed crops. The late rain will also be very helpful to wheat on fallowed land.

The first and second plants of sorghum have emerged to fairly satisfactory stands and the process of thinning will soon be under way.

#### NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (June 1)

The drought continued up to nearly the end of May. High winds and dust storms were frequent but caused little damage at the Station. The precipitation of 0.17 inch on the 19th and 20th was insufficient for satisfactory germination of flax in nursery rows.

Wheat in plots and nursery rows, damaged by frost May 12, made good recovery and mortality was slight so that stands are excellent. Oats and barley, more severely damaged by frost, made fair recovery but mortality was fairly high in some plots so that stands were noticeably reduced. Flax in varietal plots came up with good stands but some of the earliest plants to emerge were killed by frost. Most of the plants emerged after the frost so that stands were fair. Many flax plants damaged by frost in nursery rows sown before May 1 recovered and continued growth, but about 50 percent failed to recover so that stands are poor and uneven. Stands are poor in flax nursery rows sown May 3 and later because of insufficient moisture for complete germination of seed.

Cutworms, which are more plentiful than usual, are causing some further reduction in stands of flax in plots and nursery rows. Grasshoppers also are plentiful though still very small.

The crop prospects in this locality were greatly improved by a rain-fall on May 29 and 30 of 1.10 inches.

Pustules of both stem rust and leaf rust were found on wheat today. Specimens of each were examined under the microscope to determine their identity beyond question. The maximum temperature was 93° on the 28th and the minimum 42° on the 16th and 17th. The precipitation was 1.27 inches.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)  
(June 3)

The month of May remained rather dry and dusty until the 30th when a 24-hour drizzle brought 1.06 inches of moisture, making the total precipitation for the month about 1-1/2 inches.

Cereal crops are much revived since the rain except a few fields in this vicinity that have blown badly. Cereal varieties at the Substation are in only fair condition but improving. Seeding is completed except the last seeding of flax. Millet and other forage crops are being seeded in this region. Corn varieties are emerging with thin stands. Winter rye varieties are beginning to head, but winter wheat varieties were duckfooted to destroy weeds, the stand of wheat being extremely thin.

## MONTANA

AGRICULTURAL EXPERIMENT STATION, BOZEMAN (Wheat Improvement, R. H. Bamberg) (June 2)

Weather conditions have been very unfavorable for good stands of spring wheats. The precipitation in May amounted to only 0.82 inch, as compared with the normal of 2.90 inches. Stands in yield nurseries are somewhat ragged but the bunt nursery and plant rows seeded earlier, when there was more moisture near the surface, are making excellent growth.

At Moccasin, a severe dust storm on May 28 almost completely stripped the leaves from the winter wheat and also the spring-sown cereals.

## OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (June 2)

All but the late-maturing varieties of winter wheat have now headed, and all spring grains are rapidly reaching the heading stage. The date of first heading for winter varieties is about one week later than in 1936, but the dates for spring grains are about the same as last year. Consequently, there will be less difference than usual between harvest dates for winter and spring crops.

There was only 0.46 inch of rain in May, compared with an 8-year average of 0.93 inch, and crops are beginning to suffer from lack of moisture. Yields are definitely reduced in the drier areas already, and plants are rather generally beginning to appear brown and wilted. If rain does not fall within the next two weeks, many late-maturing varieties may scarcely be worth harvesting.

## UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (June 1)

Although the season began unseasonably late, as compared to past years, crops in general made rapid growth in May. Toward the latter part of the month hot, drying winds gave some cause for alarm, especially to dry-land farmers. It was necessary to irrigate all the spring grains as a result of the drought. A rain commencing on May 29 and lasting three days has given temporary relief. Winter wheat in most areas of the State is now fairly well insured so far as moisture is concerned. Much of the seed germinated during the winter and fields show spotted growth. The stands are generally fair in northern Utah and should produce good yields. Winter wheat on the Levan Ridge around Nephi is better than normal. A number of the more advanced fields of winter wheat are well in the boot stage or commencing to head.

Spring seeded grains are generally good on the nursery at North Logan. Most commercial seeding was done some time after the nursery seeding and shows lack of uniform germination. On the south side of the spring small-grain nursery wheat and barley plants commenced to turn yellow and die soon after emergence. Extremely spotted and irregular growth has resulted. Close examination of the plants showed an apparent rotting of the main stem at the point of attachment to the kernel. Plants in the area of infection that did not die have remained stunted and are several inches shorter than healthy parts of the same rows.

Oats appear not to be affected by the disease as likewise the plots seeded two days later and in the same field. A strip some 65 feet wide shows from 30 to 60 percent injury to each row whether early, late, or medium date of seeding. The causative agent has not yet been determined.

A corn nursery including 37 varieties and double crosses was planted during the month and has now emerged to good stands. In addition, a number of inbreds are being multiplied at Logan.

The precipitation for May was 1.52 inches; the mean temperature was 53.6°.

#### CALIFORNIA

BIGGS RICE FIELD STATION, BIGGS (Rice Agronomy, L. L. Davis) (June 1)

The seeding of the California rice crop is practically completed at this date. Seeding was about two weeks later than normal this spring because of heavy rains in April. All seeding was completed on the station by May 17. Excellent stands were obtained in the nursery and varietal plots and it appears that good stands will be obtained in the continuous submerged plots.

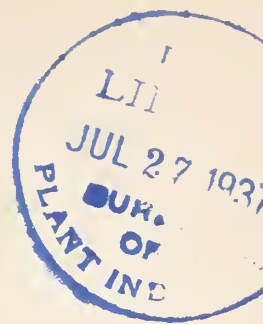
Weather conditions in May were favorable for the germination of rice. High winds on several days caused considerable damage to the levees on commercial fields. The average maximum and minimum temperatures for May were 83.9° and 51.7°, respectively. There was no rain in May.

It is estimated that about 150,000 acres of rice were seeded in California this year, of which Calady, a new medium grain variety distributed to farmers in 1935 by the Station, was sown on about 18,000 acres.

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CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)



Vol. 29 June 25, 1937 No. 9  
Personnel (June 11 - June 25) and Field Station (June 1 - 15)

PERSONNEL ITEMS

Headquarters of Mr. Charles E. Bode are being changed from Washington, D. C., to Wooster, Ohio, where he will be engaged in investigations in the soft wheat laboratory under the direction of Dr. E. G. Bayfield in cooperation with the Ohio Agricultural Experiment Station.

Mr. J. Allen Clark left Washington on June 17 on his annual trip in the interests of wheat investigations in Minnesota, Nebraska, Colorado, Wyoming, South Dakota, and North Dakota. He will inspect and take notes on cooperative wheat experiments and consult with Federal and State officials on the conduct of experiments.

On June 22 and 23 Mr. A. C. Dillman visited New Brunswick, N. J., where he took notes on the flax varietal experiments and the flax classification nursery grown in cooperation with Dr. H. B. Sprague, professor of agronomy at the Agricultural Experiment Station. It is notable that neither rust nor wilt has appeared in the flax experiments at New Brunswick, this being the ninth consecutive season that flax has been grown at the Station. The flax varieties sown April 17 were in the stage of last bloom on June 23, with a very fair crop in prospect. Some ten or more hybrid strains developed by Mr. J. C. Brinsmade appeared very promising.

Dr. Charlotte Elliott spent June 25 at Mineola, Long Island, and Yonkers, N. Y., inspecting cooperative plots of sweet corn.

Dr. M. A. McCall returned to Washington on June 23 from a short field trip in Missouri and Kansas. At Columbia, Mo., he consulted with Messrs. L. J. Stadler, Luther Smith, E. R. Sears, and J. G. O'Mara regarding progress in the wheat polyploid project, with Dr. G. F. Sprague on the corn brooding program, and with Mr. B. M. King on the rice program at Elsberry, Mo. Satisfactory progress is being made in all the cooperative undertakings at the Missouri station.

While at Manhattan, Kans., Dr. McCall attended a field day program held at a test nursery at Junction City, Kans. This nursery was sown by Dr. J. H. Parker in cooperation with the county agent, P. B. Gwin of Geary County. Samples of farmers' seed wheat were collected by the county agent and the Hogan Milling Company and sown in the test nursery as an object lesson in pointing out the actual condition of the seed wheat used on farms in the county. This test is similar to the Crop Testing Plan developed in Canada, which has had such a marked effect in improving the purity and quality of Canadian wheat.

The program, under the direction of Dean H. Umberger, of the Extension Division of the Kansas State College, included speakers representing millers, bakers, the Kansas Agricultural Experiment Station, the Kansas Extension Service, and the Kansas State Board of Agriculture. Dr. L. H. Newman, Dominion Cerealist, Ottawa, Canada, also spoke, outlining the plan carried out in Canada and explaining its advantages and the benefits derived from it. The meeting was highly successful and suggests an important method which might well be utilized in crop improvement programs in the United States.

During the trip a number of farmers' fields were inspected and stem rust was found to be quite prevalent as far west as Russell, Kans. The stage of maturity of the crop was such that damage was in prospect and in any case an ample supply of inoculum for the northward spread of stem rust is available. Under favorable conditions it seems certain that there is opportunity for a serious epidemic to develop.

Mr. L. W. Kephart left Washington June 20 to spend several weeks in Ohio, Indiana, Illinois, Wisconsin, and Minnesota in the interests of the cooperative weed research project.

Dr. H. A. Rodenhiser is spending several weeks in Illinois, Kansas, Nebraska, Idaho, and Oregon to take notes on cereal disease nurseries and to consult with officials of the State agricultural experiment stations on cooperative cereal disease investigations.

Dr. S. C. Salmon left Washington on June 22 for East Lansing, Mich., and Wooster, Ohio, to attend a conference of workers engaged in the breeding and improvement of wheat in the eastern United States.

Dr. N. E. Stevens is making a survey of bacterial wilt of corn in Illinois, Indiana, Ohio, Virginia, Maryland, Pennsylvania, New Jersey, New York, and Connecticut.

#### FULL NAME ON VOUCHERS

Attention is again directed to the fact that reimbursement and pay roll vouchers will not be accepted by the Division of Accounts without either the first or middle given name in full. This requirement is overlooked by many, necessitating return of vouchers and consequent delay.

H. S. SMITH  
Junior Administrative Assistant.

UNITED STATES DEPARTMENT OF AGRICULTURE  
Office of Director of Personnel  
Washington, D. C.

June 2, 1937.

Personnel Circular No. 47

ANNUAL LEAVE FOR TEMPORARY EMPLOYEES

Attention is invited to decision of the Acting Comptroller General of the United States, dated May 26, 1937, to the Secretary of Agriculture, A-84992.

Pursuant to the provisions of this decision, the conditions under which annual leave is granted to temporary employees are changed in the following respects:

Temporary employees are entitled to 2 1/2 days annual leave, inclusive of Sundays and holidays, for each full month of service.

One day of annual leave should be charged temporary employees for absence from duty on all of Saturday.

If the temporary employee who is on authorized annual leave on Saturday returns to duty at the opening hour of business on Monday, no leave is required to be charged for Sunday.

If the temporary employee is away for Saturday, Sunday, and Monday on annual leave, he is charged with 3 days annual leave.

Temporary employees are not entitled to annual leave for a fractional month of service. If a temporary employee serves 2 1/2 months, his annual leave is computed on the basis of 2 months.

The above decision does not change the methods of granting leave to permanent and emergency employees.

P. L. Gladmon  
Acting Director of Personnel.

UNITED STATES DEPARTMENT OF AGRICULTURE  
Office of the Secretary  
Washington, D. C.

June 11, 1937.

MEMORANDUM NO. 722

Observance of Laws and Regulations

The Administrative officers of the Department, including its various bureaus and offices, are devoting increasing amounts of time and thought to the development of regulations and procedural instructions designed to supply essential control, advice, and assistance in

the performance of the vast and complex operations with which we are charged. The need for this is recognized by interested officers and employees throughout the entire Department, and splendid cooperation and many helpful suggestions have been received from a variety of sources. With the rapid expansion of our activities, the introduction of new projects involving practices for which no background of operating experience exists, and the employment of persons whose familiarity with Government routine is limited, it is not surprising that many difficult problems have developed which admittedly have resulted at times in delay, interference, and embarrassment to the work. The major difficulties experienced in the past have been surmounted, however, and while some degree of difficulty is inherent in government operations, with the continued intelligent and helpful cooperation of the officials of this and other governmental agencies it is believed that no impassable barriers to the performance of the necessary functions will be encountered.

Inquiries made by the investigational staffs of the Department and of the General Accounting Office have revealed that in a limited number of cases officials and employees have attempted to provide "easy" solutions of some of the operating problems encountered in their work. The evidence usually indicates that these actions have provided no personal benefit to the individuals concerned but on the contrary have been intended to expedite the performance of Government business, often with consequent reduction in the expenditure of public funds. While the Department commends constant endeavor on the part of all employees to devise ways and means for expediting the transaction of business and to reduce unnecessary "red-tape", it is apparent that the persons responsible do not recognize the serious implications of such actions when they involve disregard of legal or other properly constituted restrictions. In such cases they violate laws and regulations designed to provide for orderly processes of government, and the responsible supervisory officials of the Department and of its bureaus and offices can not condone such transactions, however well intentioned. Detection must necessarily result in the imposition of penalties which may sometimes seem of unwarranted severity in the light of the motives involved.

Investigations which have been made indicate also that in a very minor number of instances members of the Department staff have deliberately violated laws and regulations to permit the accomplishment of objectives known to be prohibited, to avoid the time and effort required to conduct the business in the approved fashion, and for other purposes. The policy of the Department in handling such cases is well known.

The approved procedures constitute the only legal, effective and really expeditious methods of conducting Department business. It is the policy of the Department to constantly review the current administrative, personnel, fiscal and property requirements to the end that operations may always be on the best basis permitted by existing law. If authorized procedures, whether by law, regulation or requirement, seem, without due warrant therefor, to prevent the expeditious transaction of the business with which any employee is charged, the remedy lies, as pointed out to the staff of the Department when the revised Regulations were issued July 1, 1936, in reporting such matters, through bureau channels to this office, in order that determinations may be made whether the requirements can or should be modified.

The purpose of this memorandum is to make clear that while the Department welcomes all proper efforts to improve existing requirements it cannot sanction their disregard, whatever the intent may be of those who become involved in such transactions.

H. A. WALLACE  
Secretary.

### Use of Chlorine Gas for Treating Smutty Wheat

In January 1937 T. G. Cunningham, of the Central Basin Seed Company, Fayetteville, Tenn., sent the writer two lots of smutty wheat (variety unnamed), one of which had been subjected to a chlorine gas treatment. By means of a centrifuge and haemocytometer, the untreated wheat was found to have a spore load of 14,000 spores per kernel while the chlorine treated wheat carried only 6,660 spores per kernel. The spores on the treated wheat appeared to have been bleached by the treatment.

Germination tests made in soil by Dr. E. H. Toole of the Division of Seed Investigations showed the germination of the untreated seed to be 82 percent and that of the treated seed 80 percent.

On January 13 triplicate plantings of one hundred seeds of each lot were made in deep flats which were kept in a greenhouse at 45° to 55° F. until after the seedlings had emerged when the flats were placed outdoors. Data taken June 8 showed no infected heads from the chlorine-treated seed while 33 percent of those from untreated seed were infected with bunt.

Another planting was made January 15 in outdoor beds, 200 seeds being planted per 5-foot row. There were planted 6 rows of untreated seed, 3 rows of chlorine-treated seed, and 1 row each of seed treated with copper carbonate and basic copper sulphate. Data on infection were taken June 14. The untreated seed produced an average of 164 heads per row, 24 percent of which were bunted. The chlorine-treated seed averaged 135 heads per row, and 0.5 percent were bunted. The seed treated with copper carbonate produced 227 heads and that treated with basic copper sulphate 195 heads, and both of these two lots were free from bunt.

Mr. Cunningham wrote that he had treated 150 bushels of smutty seed wheat in 1934, 4,300 bushels in 1935, and 5,000 bushels in 1936. He stated that in all cases farmers were highly pleased with the results obtained. He has applied for a patent on his process, and has equipped his warehouse to treat large quantities of seed for his customers.

This new development in wheat seed treatment is hereby brought to the attention of those interested in bunt prevention through the medium of central treating plants.

R. W. LEUKEL

### FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

#### LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins)  
(June 16)

Rather dry weather prevailed during May. The total precipitation of 2.89 inches occurred on only three days, and 2.82 inches fell on the first day. The 27-year average for May is 5.14 inches.

The temperatures were about normal. The maximum temperature was 92° F., with an average mean temperature of 75° F.

The cost of field operations with rice were much higher than usual during May because of the extra work involved in irrigating and draining fields to germinate the seed, and soften the soil crust so that seedlings could emerge. The greater portion of the commercial rice crop and most of the Station plots were irrigated twice before a stand was obtained. Fortunately, there was practically no seedling blight to reduce stands and finally, in the main, good stands resulted.

Soybean varietal plots seeded May 7 failed to germinate. The same was true of seed of other crops that were not irrigated to induce germination.

When heavy rains do not occur early in June salt water from the Gulf is likely to contaminate the streams from which much of the irrigation water for rice is obtained.

The foot valve in the extension suction pipe of the Station deep well pump failed on May 21. A new valve was installed three days later, and by pumping long hours for several days the rice plots were soon replenished with water.

Lieutenant E. R. Whitman, retired United States marine, was a station visitor May 24. Lieutenant Whitman is planning to engage in rice growing in the Dominican Republic.

Professor J. L. Fletcher of Southwestern Louisiana Institute and his class in agronomy were Station visitors May 14.

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#### RICE EXPERIMENT STATION, CROWLEY (Rice Breeding, N. E. Jodon) (June 18)

There have been several light showers since the first of June totaling 1.76 inches. The heaviest of these was 0.43 inch on the 16th; this was the first rain of much consequence since May 1.

The dry conditions necessitated irrigating two and three times, all except the earliest sown part of the nursery to promote germination and overcome the tendency of the soil to crack, before the rice was tall enough to submerge the land. Good stands were, however, obtained in almost all tests.

The nursery is located on more fertile land this year than previously and better yields are expected. Most of the  $F_1$  plants grown last year were carried through the rather mild winter by retaining the water on the field. These will be transplanted and placed with the  $F_2$  populations for comparison during the season. A number of varieties were grown along with the  $F_1$  hybrid plants. Caloro survived the winter very well and is maturing a crop at present.

M. Gerard Huet, Chief of the Division of Genetics in Indo China, and Madam Huet, visited the station May 31 to June 2. His breeding work is confined largely to selections from the innumerable native varieties. He stated that he had 200 varieties (not pure lines) left from an original collection of 1,800. The natives are devoted to their own local varieties. Rice is sometimes transplanted three or four times, largely to retard vegetative growth.

Mr. Leo F. Hebert, graduate student in Agronomy at Louisiana State University, arrived at the Station June 1 to assist in the breeding program during the season, and to work on a Master's thesis problem. This arrangement was made possible through cooperation of the University and Experiment Station.

Dr. E. C. Tullis arrived in Crowley yesterday. At present he finds only traces of Cercospora and Helminthosporium diseases on rice.

#### IOWA

AGRICULTURAL EXPERIMENT STATION, AMES (Crown Rust of Oats, H. C. Murphy) (June 14)

On the basis of the Government crop forecast issued June 10, Iowa has an oat crop which is 94 percent of normal or the highest June 1 estimate since 1919. The same report predicts that Iowa will produce the largest winter wheat crop in history. Ample precipitation and cool weather in May and early June have been generally favorable for all small grains. Some lodging is evident already and it is probable that more will occur because of the rank succulent growth, particularly on heavy soil.

Stem rust on winter wheat is apparently already generally distributed throughout most of western and central Iowa. The infection is generally light but it is usually equal to or of greater severity than leaf rust, which is very unusual at this date. On June 12 the writer found several pustules of stem rust on spring wheat growing at Kanawha in north central Iowa. No natural infection of crown or stem rust on oats has been observed in Iowa; however, a very satisfactory epiphytotic of both rusts is now well distributed in the oat nursery at Ames as a result of artificial inoculation by means of hypodermic injection of spore suspensions into susceptible plants growing in the "rust spreader" rows. Barley mildew is unusually severe at Ames this year.

#### TEXAS

AGRICULTURAL EXPERIMENT STATION, COLLEGE STATION (Wheat Improvement, E. S. McFadden) (June 17)

The April drought continued through the month of May. The precipitation for May was only 0.95 inch, which is 3.84 inches below normal. In spite of the light precipitation, heavy dews were recorded on 22 mornings of the month, which resulted in a profuse development of the cereal rusts. All oat varieties in the winter hardiness nursery that did not possess some resistance failed to head as a result of infection by crown rust. Stem rust of oats, however, did not become abundant until the oat varieties were nearly mature. Leaf rust of wheat made its appearance the first week in March and had developed profusely by the first of May. Infection centers of stem rust of wheat were first observed on April 6, at which time the disease was in about the third generation. By May 15, it was quite generally distributed throughout the nursery, while by the last of the month many susceptible varieties carried a 100 percent infection.

Harvesting of the cereal nursery and storing of the sheaves was completed on June 4, just ahead of a big rain. Threshing is now in progress. While the grain yields, in general, appear to be only fair, the quality of the new rust resistant strains of both wheat and oats is very good. The susceptible standard varieties of wheat were very severely injured by stem rust, while crown rust injured susceptible varieties of oats.

## OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (June 16)

Sorghum planting has been delayed a few days by a rain on the 14th. The first "dates" of broomcorn and grain sorghums emerged to good stands in less than a week. Ordinarily, rain should always be welcomed in this region but a few days of planting and harvesting weather are now in order.

Some of the sorghum seed that was produced in 1936 is not of good germinating ability and this further complicates the sorghum program. There have been reports from surrounding districts of dashing, torrential rains which damaged row crops.

The maximum temperature for first half of June was 92° on the 12th, and the minimum was 50° on the 6th. The precipitation of 1.65 inches was recorded in seven measurable rains and showers.

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SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (June 16)

The harvesting of winter wheat, barley, and oats has been under way for nearly three weeks. Several early spring barley and oat varieties were fully ripe on June 16. All varieties of winter wheat in 1/47th-acre plots were combined on June 14. Harvest Queen and Sibley 81 were showing symptoms of shattering. Yields have not been recorded, though the early to midseason varieties will, perhaps, be outstanding for yield this year. Test weights apparently will be about normal.

The first winter wheat of the 1937 crop received at a Woodward elevator was marketed on June 14 and had a test weight of 62 pounds per bushel.

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## KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (May 28)

The latter part of May and the first 10 days of June have been marked by frequent showers over most of Kansas. In the eastern half of the State winter wheat has made very rank growth and recent heavy rains have caused considerable lodging. For the past two weeks the danger of a stem rust epidemic has hovered over this entire central plains area and in Kansas it has been especially foreboding in the eastern half of the state.

Heavy stem rust infection developed on soft wheats grown in northern Oklahoma in the Blackwell, Tonkawa, and Ponca City localities. This infection has moved northward into southern Kansas and, although not intense in Kansas, it has caused some apprehension to wheat growers in the northern part of the State.

At present stem rust infection is well distributed in nearly all fields of winter wheat from Hutchinson and Salina eastward. Wheat in the northern counties is still green enough to be injured. Heavy rains have prevailed for the past week and only the fact that temperatures have been considerably below normal prevents this period from being considered extremely favorable to stem rust infection.

Wheat in the southern part of the State is fairly well advanced and harvest has started in early fields. Should it clear up within the next few days, general harvest in southern Kansas should be well under way within a week. It seems unlikely, therefore, that great stem rust damage could occur in that section. One of the main points to consider, however, is the fact that wheat in much of the eastern half of Kansas is still green enough to produce tremendous amounts of inoculum for distribution farther north.

Both stem-rust and leaf-rust infection in the rust nursery are extremely heavy this year and only the most resistant selections are showing any freedom from rust. Wheats in the nursery were extremely tall and vigorous and a heavy rainstorm on June 8 caused severe lodging. Some of the plants are still green enough to straighten up but many of them will not. Leaf rust notes have been taken but stem rust is not yet well enough developed for readings. Some of the more susceptible check rows are so heavily infected with stem rust that the plants are beginning to die.

Reports have just been received that stem rust is beginning to appear on oats in eastern Kansas. The oat crop in the State is very late owing to late sowing, and a heavy stem rust infection would cause very serious damage.

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FORT HAYS BRANCH STATION, HAYS (Cereal Agronomy, A. F. Swanson)  
(June 16)

The rainfall for the first 15 days of June was 2.58 inches and came just in time to save wheat on fallowed land, which was rapidly deteriorating on May 31. A secondary growth of wheat has developed on cropped land wheat but this promises no profitable returns. A very light trace of stem rust has recently developed but the wheat which escaped the drought is beyond danger.

The early planted sorghums are being thinned to stand and cultivated. The last "date of planting" is under way.

Wheat harvest will be under way the week beginning June 20. Winter barley is almost ripe and spring barley is turning rapidly.

Official visitors at the station today were Dr. L. H. Newman, Dominion Cerealists for the Canadian Government, Dr. M. A. McCall of our Division, and President F. D. Farrell and Director L. E. Call from the Kansas State College.

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## COLORADO

UNITED STATES DRY LAND FIELD STATION, AKRON (Wheat Improvement, J. J. Curtis) (June 16)

While April and the first 20 days of May were extremely dry, the small grains were not badly damaged and they have been making good progress since the rains of the latter part of May and early June. Winter wheat, although very short, may make good yields if rains continue to be normal during the latter part of June and early July. Spring wheat, barley, and oats also promise fair yields. All small grains headed about 10 days earlier than normal. At present it appears that harvest will be earlier than usual but on about the same date as last year.

Corn and sorghum planting has been completed. They have emerged to good stands on nearly all plots. The proso and foxtail millet will be seeded immediately.

The maximum temperature for the first half of June was 91° on June 11 and the minimum 33° on June 4. The precipitation was 1.87 inches.

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#### NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (June 17)

Soil moisture conditions in this locality have been greatly improved by abundant rainfall during the first half of June. The total precipitation recorded during this period was 5.38 inches. Most of this fell slowly so that there was little runoff from most cropped lands.

The Heart River has been running high, almost continuously more than six feet above the winter level. During the night of June 14 the water rose to 11 feet and flooded part of the Fair grounds where the CCC camp is located and lowlying sections of Mandan, causing people to move out and transport their belonging in boats. The water level continued at this flood stage for about 24 hours but has now lowered to about six feet.

Wheat, oats, and barley have made good growth and early varieties are beginning to head. Flax that failed to emerge early except in patches finally came up with good stands. Stands of flax that emerged early have been seriously impaired by cutworms. Several thousand cutworms have been picked out of the flax by hand and destroyed. In one morning when a count was made four men in three hours picked out over 1,500 cutworms from the flax plots and nurseries.

Rust on wheat has shown surprisingly slow development considering the moisture conditions. Rain during much of this period has interfered with inspection of the plants for rust. Leaf rust may now be found readily in spots in plots and nurseries but is not yet generally distributed. All rust found after careful search since June 1 proved to be leaf rust until today when a large aggregate of stem rust pustules was found on a leaf in one of the wheat varietal plots.

Abnormally low temperatures have prevailed during the first half of June. The maximum temperature was 82° on the 3rd and the minimum 34° on the 6th and 7th. Slight frost damage to corn and other tender vegetation was noted in spots following the recording of these low temperatures.

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AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO  
(Wheat Improvement, G. S. Smith) (June 15)

Because of rain, snow, and poor drying weather the latter part of April, yield nurseries and varietal field plots were sown at Langdon, where the soil dries more quickly, before seedings could be continued at Fargo. Langdon seeding dates were May 4 to 8. On May 10, nursery planting at Fargo was continued. Moisture conditions at both places were very good and the emergence of all experiments was very satisfactory.

Since emergence, the weather has continued unseasonably cool. Showers have occurred almost every week so that at this date tillering is exceedingly heavy. In the eastern one-third of the State growing conditions have been nearly ideal for small grains. Corn has not grown so fast.

Although the total precipitation at Fargo in May was 1.37 inches, or slightly less than one-half normal, the showers were well distributed and cool temperatures prevented much evaporation. Temperatures during May fluctuated very little. Only on two days were temperatures above 80°. No frost was recorded during the month, a very unusual occurrence.

Stem rust was discovered on very susceptible varieties on June 12, a very early date for this Station. On June 15 it could be found on Marquis, Ceres, and Kota, more resistant varieties. The pustules observed are very large and, with nearly ideal conditions, have developed rapidly. Because of the late seeding the crop is probably 10 days later than the average. Growth is very rank. Stem rust has appeared unusually early. Frequent light showers and heavy dews continue. With this combination of circumstances it is evident that the possibility of severe rust injury in 1937 cannot be ignored.

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#### MONTANA

Agricultural Experiment Station, Bozeman (Wheat Improvement,  
R. H. Bamberg) (June 16)

In general, crop conditions have greatly improved during the first half of June. Good rains over a large portion of the State have added much needed moisture and stopped soil blowing. Rain at Bozeman during the period has totaled 3.63 inches. Spring grains now have full stands and are making good growth. Winter wheats are beginning to head. Rye is fully headed.

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## CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 29

July 10, 1937

No. 10

Personnel (June 26-July 10) and Field Station (June 16 - 30)

### PERSONNEL ITEMS

Dr. H. B. Humphrey inspected cooperative uniform rust nurseries in Grayson and Wythe Counties, Virginia, on July 2 and 3.

### RECENT PUBLICATIONS

Grain and Forage Sorghums for Nebraska. A. F. Swanson. Ann. Rep. Nebraska State Bd. Agr. 1936: 194-306, illus. [1937]

Corn Varieties, Breeding and Culture. H. B. Brown and Hugo Stoneberg. Louisiana Agr. Expt. Sta. Bull 283, pp. 20-30. March 1937. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.)

Teosinte in Guatemala: Report of an Expedition to Guatemala, El Salvador, and Chiapas, Mexico. J. H. Kempton and Wilson Popenoe. Carnegie Inst. Wash. Pub. 483: 199-218. June 1937.

Pythium Root Rot of Milo. Charlotte Elliott, L. E. Melchers, C. I. Lefebvre, and F. A. Wagner. Jour. Agr. Research 54(11): 797-834, figs. 1-22, June 1, 1937. (G-1052). (Cooperative investigations of the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Morphological Characters of Teosinte Chromosomes. A. E. Longley. Jour. Agr. Research 54(11): 835-862, figs. 1-24, pls. 1-2. June 1, 1937. (G-1053)

### FULL NAME ON VOUCHERS

Attention is again directed to the fact that reimbursement and pay roll vouchers will not be accepted by the Division of Accounts without either the first or middle given name in full. This requirement is overlooked by many, necessitating return of vouchers and consequent delay.

H. S. SLATT  
Junior Administrative Assistant.

UNITED STATES DEPARTMENT OF AGRICULTURE  
OFFICE OF BUDGET AND FINANCE  
WASHINGTON, D. C.

July 8, 1937.

MEMORANDUM, BUDGET AND FINANCE, NO. 59.

To Chiefs of Bureaus and Offices:

There has been received in this Department from the Treasury Department, Accounts and Deposits, Division of Disbursement, Circular No. 30 dated June 28, 1937, signed by the Administrative Assistant to the Secretary, which reads as follows:

"Attention is invited to the fact that vouchers are being received by the Division of Disbursement for payment in which the name of the payee is not complete. This applies especially to vouchers payable to a corporation or bank. For example, a voucher may be made in favor of the National Bank and Savings Company with no indication as to the name of the city. There may be several banking institutions bearing the same name but located in different cities.

"In order that the Division of Disbursement may be fully protected in drawing checks to the proper payees, it is requested that vouchers show the name of the payee in such a manner that when transcribed to the check, no question can be raised relative to the identical party for whom the check is intended; for example, The National Bank and Savings Company of Rochester, New York.

"The cooperation of all Departments and Establishments will be greatly appreciated."

In order that the requirements of the foregoing circular may be fully complied with, it is requested that the vouchers show the name and address of the payee as outlined above.

W. R. Fuchs  
Acting Director of Finance.

## FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

### LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins)  
(July 7)

Weather conditions in June, while not so extreme as in 1936, were not normal as to precipitation. The maximum temperature of 96° F. was 2° lower than last year, and the average maximum was 1° lower. The minimum temperature for the month of 67° was 5° higher than last year. The average minimum of 73° was, however, the same as in June 1936. The average mean temperature of 82° was the same as last year.

The total precipitation for the month of 2.37 inches is 2.24 inches more than last year and 1.86 inches less than the 27-year average for June. Rain fell on 10 days and on no day did it exceed one-half inch. Because of these light showers the total rainfall was of very little value to irrigation. While only light showers were recorded at the Station; several heavy and rather extensive rains occurred nearby which were of value to the commercial rice crop. In some areas the rainfall was much less than it was at the Station.

Work on the Station has progressed nicely. As a whole, the plots are in good condition. Rices on the Station and in commercial fields appear more healthy than at any time since 1928. A few commercial fields of early rice commenced to head the latter part of June.

The light rainfall since March has resulted in poor pasturage in fallow rice fields and in poor cuttings of hay from the station pasture plots.

Mr. M. S. Chang of Kiangsi, China, was a Station visitor June 29 and 30.

### ARKANSAS

AGRICULTURAL EXPERIMENT STATION, FAYETTEVILLE (Rice Diseases,  
E. C. Tullis) [June 28]

Leaf spot caused by Helminthosporium oryzae was found at the Rice Branch Experiment Station at Stuttgart the middle of June. It was about as abundant as last year at the same time. In Louisiana there is very little, while in the vicinity of Nemo and Beaumont, Texas, it was more abundant so early in the season than in the past eight years.

Cercospora oryzae was found on leaves of Caloro in a volunteer plot at the Rice Experiment Station at Crowley, La., but none was observed in commercial fields in Arkansas, Louisiana, or Texas.

At Stuttgart, seedlings of certain varieties approximately a month old were affected by chlorosis. Chlorosis was also found in commercial fields in Louisiana and Texas.

## MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL  
(Wheat Breeding, E. R. Ausemus) (July 3)

Cereal crops in Minnesota are in excellent condition but are beginning to show the need of moisture. Winter wheat is in the milk stage and spring wheat is heading. Stem rust has been reported in most sections of the wheat growing area of the State. At Waseca, a severe epidemic of stem rust has developed naturally in the winter wheat nursery and plots. Minturki, in low areas in the fields examined en route to Waseca, shows considerable stem rust infection. Some damage may occur in these areas as the wheat was in the milk stage.

Stem rust was found on the susceptible varieties of spring wheat at Waseca.

Wheat in the rust nurseries at University Farm is in excellent condition and a satisfactory epidemic of stem rust is developing. Leaf rust, for some reason, has not developed satisfactorily. Moisture is needed now for the small grains at University Farm.

The precipitation recorded at the Station for June was 2.64 inches, most of it occurring during the first half of the month. The maximum temperature was 97° on June 23 and the minimum 38° on June 9.

## OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (July 1)

The last half of June was hot and dry. Sorghum planting, thinning plots and rows to stand, and cultivating have been the work on the project. Good stands were obtained in quick time this season with the exception of a few rows where seed grown in 1936 was used and it was not fully mature.

Though there is a fair quantity of moisture in the soil at present rains must come this month or there will be a repetition of 1936 conditions. For the first half of this year the rainfall has been 1 inch less than for the same period in 1936; this year, however, the rain has been distributed better than in 1936.

The maximum temperature for the last half of June was 104° on the 21st and the minimum, 62° on the 30th. The precipitation for the last half of June was 0.02 inch, or a total of 1.68 inches for the month.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust,  
C. O. Johnston) (July 6)

The spring and early summer of 1937 have been very interesting in Kansas from the standpoint of the development of the winter wheat crop and of the cereal rusts. The season was similar to that of 1935 in some respects but differed widely from that season in others. As in 1935, drought throughout much of the hard red winter wheat area in April was followed by rainy periods in May. The rains of 1937, though rather light and local, were well distributed over much of Texas, Oklahoma, and Kansas. These rains continued during the first 10 days of June and in Kansas culminated in a very wet period on June 8, 9, and 10. Following the rains many fields of wheat in western Kansas that had been severely injured by drought made a remarkable recovery. In north-central Kansas drought-injured wheat plants produced many late tillers that later were destroyed by extremely hot weather.

Favored by the rains of the last half of May and the first 10 days of June, stem-rust infection developed rapidly in Kansas. By June 10 it was evident that soft winter wheat in the southeastern part of the State would be seriously damaged. Stem rust developed heavily in the border counties of southern Kansas from Cowley County eastward, and the epidemic swept gradually northeastward. The eastern third of the State ultimately suffered rather serious losses and considerable stem rust developed in the central counties. The soft red winter wheats of the eastern counties were very seriously damaged but even in the localities of severest infection the early-maturing fields escaped serious injury. In many localities there was a race between crop maturity and rust infection. The high temperature of June 17, 18, and 19, matured the wheat crop rapidly. In many localities only the later maturing fields, therefore, were severely injured by stem rust. The varieties Kawvale and Iobred in eastern Kansas, exhibited considerable resistance to stem rust. Their early maturity also aided them to escape injury. When late sown both varieties were rather heavily rusted.

Despite heavy losses from stem rust in the eastern third of Kansas, it now seems that the yield for the State may exceed the 142,000,000 bushels estimated on June 1, due largely to heavy yields in the central counties and in upland or other fields in the eastern third of the State that escaped rust damage. The average yields are running considerably higher than expected, probably owing to the rains during the filling period followed by rapid maturity. Many fields are yielding more than 25 bushels per acre and yields of more than 35 bushels are not uncommon.

Leaf-rust infection was completely overshadowed by stem rust this year. It developed late and was severe only in the eastern third of Kansas. Stem-rust infection was unusually prevalent on leaves this year and often developed so heavily that leaf rust was completely obscured.

In the Manhattan rust nursery many selections and hybrids of both winter and spring wheat showed marked resistance to leaf rust but relatively few were free from stem rust. Among the winter wheats only hybrid lines involving Hope or Marquillo parentage showed strong stem-rust resistance. Among the spring wheats, Hope, Thatcher, Renown, Apex, Marquillo, and several Ceres x Hope-Florence hybrids exhibited marked resistance to stem rust and all but Thatcher showed considerable resistance to leaf rust.

The wheats in the rust nursery were harvested during the period of June 23 to 30 and threshing is now under way.

A cereal rust conference was held at Manhattan on June 17. The following persons attended: Dr. M. A. McCall, Dr. H. B. Humphrey, Dr. A. G. Johnson, Dr. E. C. Stakman, Dr. M. N. Levine, Dr. H. C. Murphy, Dr. R. M. Caldwell, Dr. G. L. Peltier, Mr. W. L. Popham, Mr. Wallace Butler, Mr. M. E. Yount, Dr. C. L. Lefebvre, Prof. L. E. Melchers, Mr. E. D. Hansing, Mr. C. O. Johnston, and Mr. J. O. Miller.

Recent Station visitors, aside from those named above, were Dr. K. S. Quisenberry, of Lincoln, Nebr., Dr. H. A. Rodenhiser and Mr. F. A. Coffman, from Washington, D. C., Dr. E. R. Ausamus, of University Farm, St. Paul, and Mr. Martin Schleghtendal of the University of Halle, Germany.

#### NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (July 1)

The total precipitation for June at Lincoln was 3.79 inches, compared with the normal of 4.13 inches. Most of this came during the early part of the month but too late to help winter wheat a great deal. Temperatures for the month were not unusually high except for a few days between June 21 to 25; a maximum of 106° was reached on June 23. This heat wave caused some damage to late winter wheat.

Harvest in the nursery started on June 22, when a few of the earlier strains were cut. This is just one week later than the first harvest in 1936. Practically all of the nursery yield tests were harvested by the end of June. Early varieties in plots were ripe on June 25 and the late ones are being cut today.

In both plots and nursery straw was very short, ranging from 13 to 21 inches in height. Because of the drought there was considerable sterility of the upper portion of many heads, especially in Temmarq and Temmarq hybrids. Yields are not expected to run much higher than 10 bushels per acre.

The rust nursery, grown under irrigation and sprinkled, gave a very good growth of straw. A rust epidemic was obtained that gave infections of 100 percent of stem rust on all susceptible strains. In the regular nursery very little rust developed except on the later material in the classification nursery and the eastern winter-hardiness nursery.

In the State stem rust will cause considerable loss in winter wheat. All late fields in the southeastern corner of the State are badly infected. The same is true north and east of Lincoln, and it is reported that rust is serious in some areas as far west as Hastings. From Lincoln south through Beatrice very little rust developed as this area was so dry. Some fairly good yields are being reported from the Beatrice area.

Mr. J. Allen Clark visited Lincoln on June 23 and 24, and Mr. C. O. Johnston took rust notes on June 24.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN  
(Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (July 2)

Hot, dry weather prevailed during the last half of June. Crops at the Station in general have developed rapidly. Wheat, oats, and barley varieties are nearly all fully headed. The effects of frost injury early in May on wheat, oats, and barley are still striking. Varieties injured by frost have headed later and shorter than those which showed little or no frost damage. The wheat plots and nurseries are in excellent condition. Stands of flax are uneven and poor on account of frost injury, cutworm damage, and irregular emergence on different dates.

The spread of stem rust has been slow and gradual until today, when a heavy outbreak of pustules appeared on susceptible wheat varieties and on all varieties of barley.

Leaf rust has shown a continuous, rapid increase and is now prevalent on wheat and rye. No rust of any kind has yet been noted on oats.

Crops in general on farms in this locality are very poor. Many wheat fields are completely bare of vegetation or dotted only with skeleton weed, wild lettuce, or wild sunflowers as a result of frost injury, soil blowing, and cutworm infestation. In many instances cutworms have destroyed two plantings of corn and are rapidly devouring stands of millet. Grasshoppers are more numerous than ever before at this season during the past 20 years. Patches of wheat that escaped destruction by frost, wind, and cutworms in many cases are already stripped bare of leaves.

Pustules of stem rust were found in nearly all fields of Marquis and Ceres southwest of Mandan on June 27. In one of these fields examined today a general outbreak of pustules on nearly all plants was noted.

Many native pastures are covered with weeds, chiefly peppergrass, so that little or no grass is visible.

About 200 farmers from eight Slope area counties made a tour of the experiment station July 1 under the direction of county agents R. C. Newcomer, of Morton county, and H. O. Putnam, of Burleigh county.

The maximum temperature was 99° on the 19th, and the minimum 51° on the 23rd. The total precipitation for the last half of June was 0.27 inch, of which 0.25 occurred on June 17.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)  
(July 1)

During the first three weeks of June the weather was cool and rains were frequent, totaling 6.32 inches for the month. This together with 1.06 inches that fell on May 30 makes moisture conditions much different from those prevailing up until May 30. Crop conditions have greatly improved except where the stand was reduced severely by soil blowing and cutworm injury, both of which were of common occurrence in this district. Spring-sown cereal crops at the Substation are mostly in fair to good condition. It was necessary to replant some of the corn owing to uneven emergence and cutworm injury.

Beating rains broke up the clods into fine particles so that a heavy windstorm on June 23 caused severe soil blowing. Subsequent hot weather aggravated the wind injury so that the stand of flax varieties was seriously injured and corn and other cereals were injured more or less. During the last 10 days of June the maximum temperatures were in the nineties a few times and now rain would be welcomed again.

Early varieties of wheat, oats, and barley are fully headed and late varieties are beginning to head. Wheat crosses are being made.

Grasshoppers, although reduced in numbers by repeated poisoning, are still quite numerous and are beginning to move from one field to another.

One pustule of stem rust has been found and a trace of leaf rust is present on susceptible wheat varieties.

#### WASHINGTON

AGRICULTURAL EXPERIMENT STATION, PULLMAN (Wheat Improvement, O. A. Vogel) (July 1)

Wheat and peas are in excellent condition in eastern Washington and northern Idaho. The winter wheat varietal nursery at Pullman has grown fairly tall since the mid-June rains, which totaled 3.26 inches, or nearly 2 inches above normal. The weaker strawed varieties lodged badly in the wind and rain storm of last night, during which 0.14 inch of rain fell. However, the greatest amount of lodging occurred among the spring barleys, which were just heading.

Harvesting operations are expected to be a week later than last season. The Walla Walla winter wheat nursery probably will not be ready to harvest before July 15.

Hybridizing of winter wheats was completed last week.

#### OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (July 1)

Warm weather during the last week of June induced rapid ripening of winter grains, and early-maturing varieties will be ready to harvest in about a week. The rainfall during the month was the heaviest on record but came too late for maximum benefit, especially for crops on shallow soil. However, yields of spring crops will be materially increased, and grain from fall sowing should be plump and of good quality.

The total precipitation for June was 3.48 inches, falling on 14 days. The normal for the month is 1.25 inches.

Among Station visitors in June were Messrs. C. C. Fifield and T. R. Stanton of the Division of Cereal Crops and Diseases, and Señor Bartolome Schelotto of Argentina.

## UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy,  
R. W. Woodward) (July 2)

Cloudy, cool weather prevailed from May 26 to June 21. Crops in general made excellent vegetative growth during this period despite the meager precipitation. Spring seeded cereals supplied with sufficient irrigation water show promise of good yields.

Winter wheat that emerged last fall appears better than for some years, and should yield double that of much of the grain that emerged during the winter. Several fields are extremely spotted with varying proportions of fall emerged and winter emerged plants. There appears to be a difference of from 6 inches to a foot in the height, always in favor of fall emergence. Most of the grain is rather late this season with only an occasional field turning color at this time. The nursery material at Clarkston headed between June 22 and 28, which is several weeks later than average. A rather extensive smut survey reveals the fact that little smut exists this season in northern Utah. Artificially inoculated plots, however, show an excessive infection in all susceptible material.

A group of Cereal Chemists and mill supervisors held their annual convention, with the Agronomy Department as hosts, on June 28. The afternoon was spent in visiting the nursery and discussing cereal problems. In the evening a program and dinner was held in Logan Canyon, during which President E. G. Peterson of the Utah Agricultural College and Prof. Aaron F. Bracken were the speakers. Much interest and enthusiasm was shown by the visitors.

## CALIFORNIA

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson) (June 30)

A late, cool season has favored late sown cereals and assured bright, mellow barleys and good test weights of all wheat varieties. Harvest of field plots has been completed, but only a part of the yields have been tabulated. These average about 20 percent below those of 1936. Unusually high probable errors (deviation from mean) are evident. That statistical relief Latin square or pure random arrangements, used this year, will afford remains to be seen.

The barley market is active with choice lots in particular demand at prices approaching \$2.00 per cwt.

There has been no measurable precipitation at Davis in May or June. The first temperatures above 95° came last week, culminating in a maximum of 107° on June 27.

ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy,  
A. T. Bartel) (July 6)

The mean temperature for June was  $81.2^{\circ}$  or  $2.7^{\circ}$  below normal. There was only one day from June 1 to 15 that had a temperature of over  $100^{\circ}$ . The mean temperature was  $106^{\circ}$  and the minimum  $53^{\circ}$ . There was recorded only a trace of precipitation during the month.

All the field work with wheat, oats, and barley has been completed. The sorghum varieties have been planted at Sacaton and will be planted at Tucson this week end.

Recent Station visitors included Dr. B. B. Bayles and Mr. T. R. Stanton.

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## CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

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Vol. 29

July 25, 1937

No. 11

Personnel (July 11-25) and Field Station (July 1-15)

### PERSONNEL ITEMS

Dr. H. B. Humphrey left Washington on July 19 for points in Ohio, Michigan, Wisconsin, Minnesota, Iowa, North Dakota, and South Dakota to inspect and take notes on cooperative uniform rust nurseries and varietal nurseries. He will confer with officials of State agricultural experiment stations and of the Bureau relative to research projects in cooperative rust investigations. He will also collect specimens of rusts and other cereal diseases. He will return to Washington about August 14.

Dr. A. E. Longley went to Charleston, S. C., on July 11 to look over the experiments with teosinte and corn at the United States Vegetable Regional Breeding Station and to collect chromosome material for laboratory study. He also pollinated plants ready at that time.

Dr. M. A. McCall left Washington on July 12 for a 3-week field trip to the Pacific Coast to visit stations and to confer with Division personnel and officials of cooperating agricultural experiment stations.

Dr. S. C. Salmon left Washington with Dr. McCall to travel with him as far as Manhattan, Kans. He will make a 4-week trip through the Middle West and the Pacific Coast States to confer with officials of agricultural experiment stations and Bureau personnel regarding the weed research program.

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### RECENT PUBLICATIONS

The Utilization of Wabash Clay (Gumbo) Soils in Crop Production. B. M. King. Mo. Agr. Expt. Sta. Research Bull. 254, 42 pp., 13 figs. May 1937. (Cooperative investigations of the Missouri Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Trichomes of Incidental Importance as Centers for Local Virus Infections. L. W. Boyle and H. H. McKimney. Science 85: 458-459. May 7, 1937.

Longevity of *Gibberella saubinetii* and Other Fungi in Barley Kernels and Its Relation to the Ennetic Effect. R. G. Shands. Phytopathology 27(7): 749-762, fig. 1. July 1937. (Cooperative investigation between the Division of Cereal Crops and Diseases and the University of Wisconsin.)

A Further Note on the Fungus Causing a White Foot Rot of Wheat and Oats. Roderick Sprague. (Phytopath. Note) Phytopathology 27(7): 798-800. July 1937. (Cooperative investigation of the Division of Cereal Crops and Diseases and the Oregon Agricultural Experiment Station.)

False 'Black Chaff' of Wheat produced by Inoculating with Stem Rust. E. S. McFadden. (Phytopath. Note) Phytopathology 27(7): 801. July 1937.

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## FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

### LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Breeding, N. E. Jodon)  
(July 17)

About the first of the month it was anticipated that the irrigation water might soon be too salty to use, but a rainfall of 2.95 inches since then has relieved the situation and benefited all crops.

Muskrats attacked one section of the rice nursery, cutting off plants in considerable areas in yield tests of late selections, and persisted until six were caught.

Cross pollinations were begun about the first of the month; plants that had lived through the winter were used. Many selections seeded in March are now heading and available for crossing.  $F_3$  selections from several crosses seeded the latter part of April have also begun to head.

### MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) [July 16]

Drought conditions continued to prevail at University Farm. Rains have occurred over most of the State but only 0.22 inch has fallen at the Station during the period from July 1 to 15. Temperatures have been 90° or above during the period from July 5 to 13. The maximum temperature was 99.5°, recorded on July 10.

Small grains have been prematurely ripened at University Farm by the lack of rainfall and by the heat. Harvesting of winter wheat has been completed and spring wheat is ready to harvest.

A trip was taken recently through western and northwestern Minnesota. Winter wheat has apparently escaped serious injury from stem rust except on low patches in fields where the wheat was badly lodged. According to Government estimates there are about 350,000 acres, which is double the normal acreage for the State.. Many fields have been cut and will give an excellent crop.

Stem rust was present in epidemic form on the susceptible varieties of spring wheat. Thatcher is resistant again this year, there being only a few pustules of rust in the fields examined. There is some injury to Thatcher from drought in certain areas of the State.

Most fields of barley have considerable rust. Corn looks uniformly good throughout the area visited. Oats, on the other hand, do not have an appreciable amount of rust.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (July 1)

The drought of April and May lasted until June 7 at Denton. On that day a dashing rain, which totaled 2.45 inches in 30 minutes, caused some damage by washing but owing to the very dry condition of the soil was mostly retained. This was very beneficial to corn, legumes, feed crops, and pastures. The total rainfall for June was 4.10 inches, but by the end of the month corn and other rapidly growing crops were needing additional moisture. The maximum temperature for the month was 102°. On only 3 days during the month was the temperature above 100°. In general, weather conditions were favorable for crops.

Harvest of experimental small grains was completed early in the month. Threshing of field plots, including varietal tests, was completed and the yields are presented in the accompanying table. The quality of wheat and fall oats is excellent. Spring oats are very light. Barley yields are good but the grain is not well filled. Threshing on farms was all completed during the month. Yields of wheat were excellent, ranging from 10 bushels to as high as 50 bushels per acre; many farms averaged 25 to 30 bushels. Stem rust damaged grain seriously in some late maturing fields. The mill at Denton reports receipt of quite a number of loads testing around 50 pounds per bushel. Fall oats in this area were of excellent quality and fair to good yields were reported.

The writer left on June 25 for the Texas Panhandle to harvest cooperative experiments. Wheat on the Plains is quite spotted, some areas producing high yields of excellent quality wheat while a considerable portion of the area will produce low yields of low quality wheat. In the southern part of the Plains area, especially Floyd County, yields ranging from 10 to 45 bushels are reported. Floyd County expects to produce 5,000,000 bushels of wheat. Chiefkan, the new beardless Blackhull wheat, has made an excellent record in this county and is growing in popularity. The entire Plains area from Amarillo northward will produce low yields of wheat. A large acreage has already been plowed up. Stem rust and dry, hot weather severely damaged the succulent growth that developed following May rains in this area. Harvest of this late wheat has just started; yields are low and the grain is badly shriveled in some instances.

Cooperative varietal tests in the Panhandle were almost a failure. The best test (at Plainview) was destroyed by hail. The yields at Spearman ranged from 1 to 5 bushels per acre while the test at Hereford was abandoned as too poor to harvest. The Amarillo nursery was almost a complete failure, although portions of it were harvested to save seed.

Average yield of four replicated 1/55-acre plots  
of wheat, barley, and oats  
Denton, Texas, 1937

Winter Wheat

| Variety                  | C.I.<br>No. | T.S.<br>No. | Yield (Bu.<br>per Acre) | Test Wt.<br>(Lbs. per bu.) |
|--------------------------|-------------|-------------|-------------------------|----------------------------|
| Denton                   | 8265        | 9236        | 34.4                    | 59                         |
| Mediterranean            | 10086       | 3015-81     | 33.6                    | 60                         |
| Do.                      | 11587       | 3015-105-1  | 35.4                    | 60                         |
| Do.                      | 10085       | 5933-20     | 37.4                    | 60                         |
| Do.                      | 11525       | 5933-23     | 33.9                    | 59.5                       |
| Do.                      | --          | 5933-38     | 31.6                    | 59                         |
| Campbell Mediterranean   | --          | 23250       | 40.3                    | 59                         |
| Denton x Kanred, 4-31-28 | --          | --          | 37.4                    | 59.5                       |
| Clarkan                  | 8858        | 20400       | 39.0                    | 60                         |
| Kawvale                  | 8180        | 12577       | 39.1                    | 60                         |
| Fulcaster                | 6471        | 7082        | 36.6                    | 58                         |
| Tennarq                  | 6936        | 12578       | 45.0                    | 59                         |
| Blackhull                | 6251        | 7172        | 42.6                    | 62                         |
| Kanred                   | 5146        | 11763       | 39.5                    | 58                         |
| Kharkof                  | 1442        | 16830       | 32.9                    | 58                         |
| Nebraska No. 60          | 6250        | 15835       | 31.7                    | 58                         |
| Turkey selection         | 10016       | 23274       | 37.3                    | 59                         |
| Early Blackhull          | 8856        | 15838       | 47.6                    | 61.5                       |
| Quivira                  | 8886        | 15833       | 44.1                    | 61                         |

Fall Sown Barley

|                       |      |       |      |    |
|-----------------------|------|-------|------|----|
| Tennessee Winter      | 3545 | 15826 | 44.7 | -- |
| Do.                   | 6125 | 15825 | 49.7 | -- |
| Do.                   | 6126 | 18561 | 44.0 | -- |
| Do.                   | 6128 | 23259 | 49.0 | -- |
| Wisconsin Winter      | 2159 | 15839 | 44.4 | -- |
| Finley                | 5901 | 12576 | 45.5 | -- |
| Bailey                | 5902 | 23241 | 55.1 | -- |
| Smith S-31-51         | 6143 | 23257 | 54.8 | -- |
| Smith S-31-62         | 6127 | 23258 | 63.6 | -- |
| Earlan Hybrid 1-31-79 | --   | --    | 47.7 | -- |

Oats

|                                       |      | Fall Sown |          | Spring sown |          |
|---------------------------------------|------|-----------|----------|-------------|----------|
|                                       |      | Yield     | Test Wt. | Yield       | Test Wt. |
| Frazier                               | 2381 | 9234      | 77.9     | 36          | 64.8     |
| Nortex                                | 2382 | 9235      | 77.7     | 29          | 60.3     |
| New Nortex                            | ---  | 1401-24   | 84.3     | 30          | 54.9     |
| Ferguson 922                          | 2150 | 9400      | 71.3     | 30          | 53.2     |
| Texas Red Rustproof                   | ---  | 1118-69   | 76.6     | 29          | 50.4     |
| Do.                                   | ---  | 1415-12   | 86.1     | 30          | 56.4     |
| Do.                                   | ---  | 2805-39   | 77.9     | 29          | 52.9     |
| Do.                                   | ---  | 2805-43   | 77.8     | 29          | 53.8     |
| Do.                                   | ---  | 6217-43   | 74.8     | 29          | 53.4     |
| Fulghum (winter form)                 | 2498 | 15827     | 81.1     | 35          | --       |
| Kanota x Victoria 13-33-69 (3 series) | ---  | ---       | ---      | --          | 40.5     |
| Kanota x Victoria 13-33-70 (3 series) | ---  | ---       | ---      | --          | 45.5     |

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (July 16)

The first half of July was hot and dry. Thinning of sorghums is up to date and only the seedings made in July remain unthinned. Plots are trimmed to length and counting of plants is in progress. A local shower of 0.45 inch on the 14th improved chances for a sorghum crop on the Station. Grasshoppers are more numerous than in previous years and poisoned bran mash has been scattered over most of the broomcorn and sorghum project.

While our sorghum yields are dependent on weather conditions during the next month, the earlier varieties in the first date-of-seeding experiment have already been reduced in possible yields by the drought.

The maximum temperature for the first half of July was 105° on the 4th and 5th; it was 100° or more on 12 of the first 15 days of July. The minimum temperature was 68° on the 9th. The precipitation was 0.45 inch.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (July 18)

Threshing of winter wheat in plots and in the nursery was completed last week. Threshing of barley and oat varieties was finished Monday. The yields of varieties grown in nursery rows have not yet been taken. The yields of wheat varieties in plots are below average. Early Blackhull ranked first in order of average yield for the third time in seven years. Its seven-year average yield is still about four bushels per acre below that of Cheyenne. The average yields and test weights of varieties grown in quadruplicated 1/47th-acre plots are as follows:

| Variety                   | C.I.No. | Ave.Yield<br>(Bu.per acre) | Bushel<br>weight<br>(Lbs) |
|---------------------------|---------|----------------------------|---------------------------|
| Early Blackhull           | 8856    | 14.4                       | 54                        |
| Blackhull                 | 6251    | 10.9                       | 57                        |
| Quivira                   | 8886    | 10.6                       | 54                        |
| Chiefkan                  | ----    | 10.0                       | 56                        |
| Temmarq                   | 6936    | 9.5                        | 54                        |
| Fulcaster                 | 6471    | 9.5                        | 55                        |
| Turkey selection          | 10016   | 9.0                        | 54                        |
| Kanred x Marquis          | 10090   | 8.9                        | 57                        |
| Kawvale                   | 8180    | 8.6                        | 52                        |
| Sibley No. 62             | 11523   | 8.1                        | 56                        |
| Kanred                    | 5146    | 7.2                        | 57                        |
| Denton                    | 8265    | 6.7                        | 56                        |
| Turkey selection Goodwell |         |                            |                           |
| selection No. 102         | ----    | 6.6                        | 56                        |
| Hartwig selection         | ----    | 6.2                        | 56                        |
| Sibley No. 81             | 10084   | 5.6                        | 56                        |
| Cheyenne                  | 8885    | 5.3                        | 56                        |
| Local Turkey              | ----    | 4.9                        | 56                        |
| Nebraska No. 60           | 6250    | 4.3                        | 57                        |
| Oro                       | 8220    | 4.2                        | 57                        |
| Kharkof                   | 1442    | 4.0                        | 56                        |

A small planting of Chia was completely dried up by July 1. It was at that time about 24 inches tall and had not started to bloom.

Flax stands were very poor from each of four dates of seeding. The stands from the February 1 seeding gave the best results. The stands of Linota and Redwing were superior to those of Bison, Rio, and Bolley's Golden in each date of seeding.

Over 17 tons of poison bran have been distributed to farmers of Woodward County for the control of grasshoppers. In general, the hoppers came too late to seriously damage wheat or oats but they are doing considerable damage to grass and row crops. In some sections they are stripping the leaves and apples from trees and a heavy crop of wild plums from the bushes.

#### NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (July 17)

The first 10 days of July were hot and dry and corn was damaged considerably. Rains of 1.40 inches on July 12 to 14 revived the corn, and will make possible plowing for fall crops.

All winter wheat plots have been threshed and the average yields are shown in the accompanying table. Yields were higher than expected based on the appearance of the crop, since the straw was so short and heads so small. The test weights were all very good; not much damage had been done by rust.

Nursery threshing was completed yesterday. There yields were low but grain quality good.

Mr. F. A. Coffman visited the Station on July 2 and 3 and Mr. T. R. Stanton on July 3.

Yields of winter wheat varieties grown in 1/40-acre plots at  
Lincoln, Nebr. 1936-37.

| Variety                       | C.I.<br>No. | Nebr.<br>No. | Av. yield<br>(bu. per acre) <sup>1/</sup> |
|-------------------------------|-------------|--------------|-------------------------------------------|
| Clarkan                       | 8858        | 1084         | 16.8                                      |
| Blackhull selection           | 11737       | 1093         | 16.5                                      |
| Kharkof                       | 1442        | 1010         | 16.1                                      |
| Nebraska No. 312              | -----       | 312          | 16.0                                      |
| Turkey (Crimean)              | 1435        | 1002         | 15.8                                      |
| Nebraska No. 60               | 6250        | 60           | 15.8                                      |
| Kanred                        | 5146        | 1003         | 15.5                                      |
| Early Blackhull               | 8856        | 1057         | 15.5                                      |
| Turkey selection              | 11577       | 1081         | 15.2                                      |
| Tenmarq                       | 6936        | 1030         | 15.1                                      |
| Cheyenne selection            | 11666       | 1087         | 14.8                                      |
| Oro                           | 8220        | 1032         | 14.6                                      |
| Turkey                        | -----       | 1            | 14.6                                      |
| Turkey selection              | 11734       | 1095         | 14.5                                      |
| Kawvale x Tenmarq             | 11669       | 1086         | 14.1                                      |
| Turkey (S. Dak. 144)          | -----       | 1011         | 14.1                                      |
| Cheyenne                      | 8885        | 1050         | 14.0                                      |
| Turkey (Seward Co.)           | -----       | 1005         | 13.9                                      |
| Turkey selection              | 10016       | 1069         | 13.7                                      |
| Iowin                         | 10017       | 1059         | 13.7                                      |
| Turkey selection              | 11576       | 1082         | 13.6                                      |
| Tenmarq x Minturki            | 11580       | 1094         | 13.6                                      |
| (Minhardi-Minturki) x Tenmarq | 11668       | 1085         | 13.5                                      |
| Oro x Fulhard                 | 11579       | 1083         | 13.4                                      |
| Blackhull                     | 6251        | 1004         | 13.3                                      |
| Turkey selection              | 10094       | 1063         | 12.8                                      |
| Minturki x Blackhull          | 11671       | 1089         | 12.5                                      |
| Kawvale                       | 8180        | 1052         | 12.2                                      |
| Turkey selection              | 11667       | 1088         | 11.2                                      |
| Do.                           | 10015       | 1062         | 10.5                                      |

<sup>1/</sup> Average of 5 plots.

Single plots

|                        |       |           |      |
|------------------------|-------|-----------|------|
| Cheyenne               | 8885  | 1050      | 18.6 |
| Kanred x Blackhull     | ---   | Sel. 2082 | 17.9 |
| Minturki x Blackhull   | 11815 | Sel. 3772 | 17.9 |
| Akron selection No. 7  | 11660 | -----     | 17.9 |
| Blackhull selection    | ----- | 1092      | 17.3 |
| Minturki x Nebr. No. 6 | ----- | Sel. 2059 | 16.5 |
| Ridit x Nebr. No. 6    | 11670 | 1097      | 14.8 |
| Turkey selection       | 11735 | 1096      | 13.9 |

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (July 16)

The weather of the first half of July was variable, alternating dry with wet, hot with cool, windy with calm. A generally dry, hot period the first week in July was followed by a period of intermittent rain and cool, cloudy weather. The precipitation was 1.67 inch. The maximum temperature was 102° on the 5th and the minimum, 54° the 15th.

Crops have developed rapidly during this period. Early varieties of wheat, oats, and barley in the plots are almost ripe. Late varieties of wheat are in the soft dough stage.

Rust on wheat has increased gradually and is breaking out on the necks of susceptible varieties. Some stem rust has been noted on oats. Plants drying prematurely, apparently from root rot, have appeared in some wheat varieties, chiefly among those severely damaged by frost in May.

Flax in plots is nearly through blooming. Some of the flax plants that emerged early in nursery rows already have some ripe bolls, while plants that emerged late in the same rows have not commenced blooming.

Grasshoppers and several species of caterpillars and blister beetles have done considerable damage to crops and other vegetation. Poisoning apparently has been effective in reducing the numbers of grasshoppers in the Station plots.

Official visitors included Messrs. J. A. Clark and A. C. Dillman, of the Division of Cereal Crops and Diseases, and Messrs. H. L. Walster, P. J. Olson, and L. R. Waldron of the North Dakota Agricultural Experiment Station.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)  
(July 17)

Cool, wet weather has continued during the most of the time since the first week of July. The maximum was 104° on July 5 but since that time but few hot days have occurred. About 2 1/2 inches of rain have fallen this month and approximately 10 inches since the wet period began May 30.

A small amount of both leaf and stem rust is present on susceptible wheat varieties and a trace on barley. Grasshoppers continue to do considerable damage on cereal crops and some fields are being cut for hay to save them. Web worms are extremely numerous and have stripped the leaves from oats in some places but are also feeding on Russian thistle and other weeds.

Early strains of barley in the nursery have been harvested and early varieties of oats and barley in field plots will be harvested the first of next week.

Mr. J. Allen Clark visited the Substation yesterday.

MONTANA

AGRICULTURAL EXPERIMENT STATION, BOZEMAN, (Wheat Improvement,  
R. H. Bamberg) (July 16)

Crop conditions in the Gallatin Valley are apparently better at this date than they have been in several years. Prospects are good for an excellent harvest of grain, although recent rains and wind have caused much lodging in commercial fields and in Station plots. Since July 1, 1.67 inches of precipitation have been recorded. The total since April 1 is 8.81 inches. The rotation plots, alfalfa, and certain of the cereal nurseries were irrigated the first part of this week before the heavy rain.

Spring wheats are almost fully headed and are standing up well, while winter wheats are filling and some have lodged badly. Because of the late spring and the good moisture during most of the growing season, harvest of winter wheat will be late.

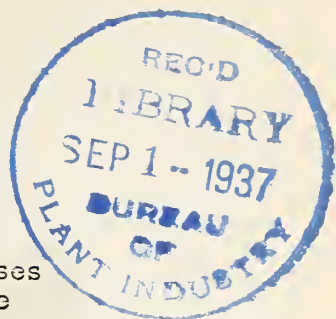
Leaf rust is abundant in the winter wheat, some varieties in the plots and nursery being rather heavily infected.

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## C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)



Vol. 29

August 10, 1937

No. 12

Personnel (July 26-Aug. 10) and Field Station (July 16-31)

### PERSONNEL ITEMS

Mr. Jenkin W. Jones left Washington on August 19 to spend about two months in the rice-producing areas of Louisiana, Texas, Arkansas, California, and Missouri. He will study cooperative rice experiments, make selections, and study hybrid material. He also will confer with officials of the agricultural experiment stations in the States named regarding cooperative rice research.

Mr. George Kattermann, cereal breeder at the Bayerische Landessaatzuchtanstalt, Weißenstephan, Germany, was a visitor in the Division on August 3 and 4.

Dr. John E. Martin left Washington August 10 to spend about two months in the sorghum-growing area of the United States. He will conduct breeding experiments and observe cooperative experiments and confer with officials of the Department of Agriculture and of State agricultural experiment stations on cooperative sorghum research. His itinerary will include points in Nebraska, Kansas, Oklahoma, Texas, New Mexico, Arizona, California, Colorado, Illinois, and Tennessee.

Dr. V. F. Tapke and Mr. Arthur Bonham went by official truck from the Arlington Experiment Farm to Ithaca, N. Y., on July 26. They spent 10 days in taking data on barley smut experiments conducted in cooperation with the New York (Cornell) Agricultural Experiment Station. Although the barley had been sown a month later than usual, the results of the smut tests were satisfactory.

RECENT PUBLICATIONS

✓ Biennial Report of the Rice Experiment Station, Crowley, Louisiana, 1935-1936, 19 pp. J. Mitchell Jenkins. [1937] (Cooperative investigations between the Division of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.)

El Cultivo del Arroz. J. Mitchell Jenkins. Pan Amer. Union Bull. 122, 19 pp., 8 figs. July 1937. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.)

Inferior Yields Obtained from Crosses of Six-Rowed with Two-Rowed Barleys. Harry V. Harlan, Mary L. Martini, and Harland Stevens. Science 86(2219): 35-36. July 9, 1937.

The Green Muscardine Fungus on the Periodical Cicada. Saburo K. Katsura and A. G. Johnson. Science (n. s.) 86(2223): 128. August 6, 1937.

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FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

VIRGINIA

ARLINGTON EXPERIMENT FARM, ROSSLYN (Small Grain Agronomy, J. W. Taylor) (July 30)

Grain yields of the fall-sown grains were average or slightly better. Straw yields, however, were well above average. The rainfall for the crop year was unusually heavy, totaling 47.9 inches, or 6.7 inches above average. Of the total, 17.4 inches fell during April, May, and June, which no doubt was an important factor in the straw yields. The bushel weight of wheat is below average. The lowest temperature for the crop year was 14° and little winter injury was observable even in the tender oat varieties.

The yields of the wheat, oat, and barley varieties are shown in the following tables.

Yield of winter wheat varieties grown in four plots and percentage of the nearest Purplestraw check plots, at the Arlington Experiment Farm, 1937.

| Variety                | C.I.<br>No. | Yield<br>(Bu. per acre) | Percentage of<br>nearest check<br>average |
|------------------------|-------------|-------------------------|-------------------------------------------|
| Gasta                  | 11398       | 37.8                    | 113.9                                     |
| Wharten                | 10071       | 36.1                    | 108.7                                     |
| Dixie                  | 10070       | 37.0                    | 107.9                                     |
| Arlando                | 10069       | 34.9                    | 101.7                                     |
| Leap                   | 4823        | 31.4                    | 100.3                                     |
| T47-55                 | -----       | 33.1                    | 99.7                                      |
| Marmoth Red            | 2008        | 31.2                    | 98.7                                      |
| Red Wonder             | 5780        | 32.4                    | 98.5                                      |
| Dietz                  | 1981        | 30.7                    | 98.1                                      |
| Leapland               | -----       | 30.7                    | 98.1                                      |
| Fultz                  | 1923        | 30.8                    | 97.5                                      |
| Missouri Bluestem      | 1912        | 31.4                    | 95.4                                      |
| Peole                  | 1979        | 29.5                    | 94.2                                      |
| Nittany                | 6882        | 32.1                    | 93.6                                      |
| Fulcaster              | 1945        | 29.5                    | 93.4                                      |
| Turnbull               | 5657        | 30.8                    | 92.8                                      |
| Forward                | 6691        | 31.2                    | 91.0                                      |
| Shepherd               | 6163        | 29.5                    | 89.7                                      |
| V. P. I. 131           | 10047       | 27.9                    | 84.0                                      |
| Purplestraw <u>1</u> / | 1915        | 32.5                    | -----                                     |

1/ 22 check plots.

Yield of winter oat varieties grown in three 1/40th-acre plots and percentage of the nearest Lee check plots at the Arlington Experiment Farm, 1937

| Variety            | C.I.<br>No. | Yield<br>(Bu. per acre) | Percentage of<br>nearest check<br>plots |
|--------------------|-------------|-------------------------|-----------------------------------------|
| Fulghum (699-202)  | 2498        | 70.0                    | 108.7                                   |
| Winter Turf        | 541-4       | 72.1                    | 107.5                                   |
| Fulghum            | 708         | 67.3                    | 104.5                                   |
| Fulghum (699-2011) | 2499        | 65.9                    | 102.3                                   |
| Custis             | 2041        | 68.4                    | 101.9                                   |
| Culberson          | 273         | 65.5                    | 101.7                                   |
| Winter Turf        | 431         | 66.5                    | 99.1                                    |
| Randolph           | 2275        | 64.2                    | 95.7                                    |
| Sporen             | 2506        | 62.4                    | 93.0                                    |
| Coker 32-1         | 3026        | 51.6                    | 80.1                                    |
| Lee 1/             | 2042        | 66.3                    | ----                                    |

1/ 8 check plots.

Yield of winter barley varieties grown in duplicate 1/80th-acre plots and percentage of the nearest Wisconsin Winter check plots, at the Arlington Experiment Farm, 1937

| Variety                    | C.I.<br>No. | Yield<br>(Bu. per acre) | Percentage of<br>nearest check<br>plots |
|----------------------------|-------------|-------------------------|-----------------------------------------|
| Mechanical Mixture         | 4115        | 52.5                    | 121                                     |
| Alaska                     | 4106        | 50.4                    | 115                                     |
| Hooded (Selection 6)       | ---         | 36.7                    | 114                                     |
| Orel                       | 351         | 49.0                    | 113                                     |
| Smooth Awn 86              | 6268        | 37.8                    | 111                                     |
| Composite Cross (old)      | 4116        | 46.7                    | 110                                     |
| Tennessee Winter           | 3546        | 42.9                    | 109                                     |
| Do                         | 257         | 47.1                    | 108                                     |
| Do                         | 3534        | 46.1                    | 108                                     |
| Smooth Awn 203             | 6267        | 36.7                    | 108                                     |
| Esaw                       | 4690        | 40.7                    | 104                                     |
| Han River                  | 2163        | 44.2                    | 104                                     |
| Composite Cross (winter)   | 5530        | 43.6                    | 102                                     |
| Woods (hooded)             | 6235        | 31.9                    | 98                                      |
| Gaddis (hooded)            | 6003        | 31.7                    | 98                                      |
| Nakano Wase 33             | 6269        | 30.2                    | 94                                      |
| Nakano Wase 68             | 6272        | 29.5                    | 91                                      |
| Beardless 6                | 2746        | 35.7                    | 91                                      |
| Tennessee Winter (Johnson) | 6034        | 34.8                    | 89                                      |
| Poland                     | 6280        | 27.5                    | 85                                      |
| Kentucky smooth awn 11     | 6021        | 28.0                    | 82                                      |
| Nobarb                     | 6120        | 19.8                    | 58                                      |
| Wisconsin Winter 1/        | 2159        | 38.3                    | --                                      |

1/ 13 check plots.

## LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins)  
(August 5)

Weather conditions in July were about normal. The maximum and minimum temperatures were the same as in July last year, 95 and 69°, respectively. The average maximum was, however, 4° higher and the average mean 3° higher than last year.

The total precipitation of 5.37 inches is 1.23 inches less than in July 1936 and .81 of an inch less than the 27-year average.

Because of the frequent light showers in which most of the precipitation occurred, it was not so beneficial to rice irrigation as the total might indicate. Rains at no time were general over the rice area. The indications are, however, that if they continue during the next month there will be sufficient fresh water to mature the rice crop over the greater portion of southwestern Louisiana.

Early rices are maturing. A few commercial fields were harvested the last week in July. The crop as a whole continues remarkably free of disease. Certain areas in commercial fields that failed to produce two years ago give promise of a fair yield this year.

As a whole, the station plots are in good condition, giving indications of satisfactory results. Early rices are heading and maturing in the varietal, date-of-seeding, and date-of-submergence experiments. Cotton and corn plots give promise of the highest yields in several years. There has been very little cotton boll weevil injury. The frequent rains followed by hot sun is, however, causing cotton to shed. If such weather continues the yields will be greatly reduced. Most of the cotton in commercial fields, especially those seeded at an early date, has turned brown and lost most of its leaves.

Station visitors in July included Messrs. A. Secundino L. José, Agronomy Professor of E. S. A. V., Geraldo G. Carneiro, Professor of Animal Husbandry of E. S. A. V., John M. Griffing and Bruce Griffing of Vicosa, Minas Geraes, Brazil, and Peter B. Riebold, Agriculturist, of Switzerland, and Messrs. Ali A. El Khishen, Gaafar S. H. El Mallah, H. A. El Tobzy, and M. Zalaki, of the College of Agriculture, Giza, Egypt.

## ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice Production and Improvement, C. R. Adair) (July 29)

The temperatures this summer have been below normal, the highest being 99° on July 17. The maximum temperature has been below 90° many days in July. The minimum temperature was 61.5° on July 28.

The condition of the rice crop is about average. Many of the fields are quite grassy. Expansion of the acreage on new land in the northern part of the State probably will increase the total production of the State for this year above what it has been any year recently.

The yields of winter oats on Station plots were good. However, the yields on commercial fields averaged low this year. The low yields were caused by armyworms which did a great deal of damage, especially in the southern part of Arkansas County.

The average yields of 22 varieties of winter oats grown in triplicated 0.0238-acre plots are shown in the table.

| Variety              | C.I.<br>No. | Yields<br>(Bu. per acre) | Variety             | C.I.<br>No. | Yields<br>(Bu. per acre) |
|----------------------|-------------|--------------------------|---------------------|-------------|--------------------------|
| Ferguson 922         | 2150        | 58.2                     | Fulghum             | 708         | 50.3                     |
| Ferguson 922 (elite) | ----        | 61.3                     | Coker (Norton       |             |                          |
| Ferguson 71          | 844         | 60.2                     | St. 3)              | 2909        | 48.6                     |
| Nortex               | 2382        | 60.0                     | Coker 32-1          | 3026        | 47.0                     |
| Appler               | 1815        | 55.8                     | Coker 33-50         | 3167        | 55.8                     |
| Red Rustproof        |             |                          | Fulgrain            | 3253        | 51.4                     |
| (Tex. 1415-9)        | 518-3       | 59.1                     | Coker 33-47         | 3176        | 49.0                     |
| Red Rustproof        | 512         | 56.7                     | Lee                 | 2042        | 49.7                     |
| Hasting (H. B.)      | 2462        | 60.6                     | Custis              | 2011        | 43.3                     |
| Alber                | 2766        | 53.0                     | Winter Turf (541-4) | 3297        | 30.0                     |
| Fulghum (winter      |             |                          | Arkansas 12         | ----        | 33.3                     |
| type)                | 2499        | 54.7                     | Arkansas 1          | ----        | 32.6                     |
| Fulghum (winter      |             |                          |                     |             |                          |
| type)                | 2500        | 58.2                     |                     |             |                          |

#### TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (August 1)

Weather conditions in August were about seasonal. The maximum temperature of 103° was recorded on the 25th and 28th; the minimum temperature was 63°. The mean for the month was 84.6°, which is very close to normal. The precipitation for the month was 1.42 inches, or 0.68 inch below normal, which brings the year's deficiency to date to 6.39 inches. The evaporation from a free water surface was 9.414 inches, which is very high.

The dry weather of the last of June and of July matured corn rapidly and there was some damage. At this date corn is fully mature. Cotton suffered from insects early in the season but at present a good crop is in prospect. Additional moisture is needed for cotton, however. Grain sorghums and hay have produced fine crops in this area.

All nursery threshing was completed during the month. Grain has been weighed at this writing and all yield calculations made. Flax was very late in maturing this season and produced a very low yield. Experimental plantings of Perilla and Chia are not at all promising as they are suffering from lack of moisture.

A field day for farmers, held at the Cotton Breeding Station, Greenville, Texas, on July 30, was attended by the writer.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (August 2)

The weather of the last half of July continued dry and hot. Sorghums and broomcorn appear better than at this time last year but rains must come before row crops can be made. The earlier sorghums and broomcorn have already been damaged by the drought. Bagging of heads for seed has been started in the earlier seedings and quick maturing varieties.

On a trip to Lawton last week a number of fields of milo and Dwarf hegari were observed to be ripening. Cotton was blooming at the top and rain is needed.

The maximum temperature for the last half of July was  $106^{\circ}$  on the 24th and the minimum,  $58^{\circ}$  on the 26th. The precipitation was 0.06 inch, or a total of 0.51 inch for July 1937.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (August 2)

The hot, dry weather continues. Temperatures have been  $100^{\circ}$  or over, usually accompanied by hot south winds, during 31 days this season, 22 of which were during July. A rainfall of 7.86 inches has been recorded to date, or 5.67 inches less than the 23-year Station average for January to July, inclusive. The rainfall in July amounted to 0.51 inch as compared with the Station average of 1.97 inches. The maximum temperature was  $106^{\circ}$  on the 24th and the minimum,  $58^{\circ}$  on the 25th; the mean was  $63^{\circ}$ .

Row crops, pastures, and trees are suffering noticeably. Pastures are so barren in some local areas that livestock are at this date forced to subsist on straw.

Nursery yields have recently been computed. The yields and test weights are low but considering the season they are fairly satisfactory. The yields of wheat, barley, and oats are shown in the accompanying tables.

Yields and test weights of winter wheat varieties grown in the uniform yield nursery in quadruplicated 3-row plots at Woodward, Okla., 1936-1937.

| Variety                     | C. I.<br>No. | Average yield<br>(Bu. per acre) | Bu. weight<br>(Lbs.) |
|-----------------------------|--------------|---------------------------------|----------------------|
| Akron selection 7           | 11660        | 20.1                            | 54                   |
| Beloglina x Hussar          | 11513        | 19.7                            | 55                   |
| Blackhull selection         | 11757        | 19.0                            | 57                   |
| Kawvale x Temmarq           | 11669        | 18.8                            | 52                   |
| Prelude x Kanred            | 11591        | 18.6                            | 56                   |
| Early Blackhull             | 8856         | 17.6                            | 56                   |
| Penquite selection          | 11745        | 17.1                            | 56                   |
| Oro x Fulhard               | 11579        | 16.4                            | 56                   |
| Kanred x Hard Federation    | 10092        | 16.0                            | 56                   |
| Kawvale x Temmarq           | 11821        | 15.4                            | 52                   |
| Kanred x Marquis            | 11589        | 15.2                            | 54                   |
| Turkey selection            | 11577        | 15.1                            | 53                   |
| Do                          | 11667        | 14.7                            | 53                   |
| Temmarq x Minturki          | 11580        | 14.5                            | 53                   |
| Kanred x Kanred-Marquis     | 11592        | 14.4                            | 55                   |
| Turkey selection            | 11576        | 14.3                            | 53                   |
| Oro x Temmarq               | 11673        | 13.8                            | 54                   |
| Turkey selection            | 10016        | 13.0                            | 54                   |
| Oro x Temmarq               | 11672        | 12.5                            | 56                   |
| Cheyenne selection          | 11666        | 12.5                            | 56                   |
| Turkey selection            | 10083        | 12.0                            | 55                   |
| Sibley 62                   | 11523        | 11.8                            | 55                   |
| Minturki x Blackhull        | 11671        | 11.7                            | 54                   |
| Turkey selection            | 10094        | 11.3                            | 54                   |
| Nebraska 60                 | 6050         | 10.6                            | 56                   |
| Turkey x Marquis            | 11727        | 10.6                            | 53                   |
| Blackhull                   | 6251         | 10.5                            | 55                   |
| Kharkof                     | 1442         | 9.5                             | 56 1/                |
| Minhardi-Minturki x Temmarq | 11668        | 9.2                             | 54 1/                |
| Kanred x Marquis            | 11746        | 8.5                             | 54 1/                |

1/ Estimated.

Yields and test weights of winter barley varieties grown in triplicated 3-row plots at Woodward, Okla., 1936-1937

|                          |      |      |    |
|--------------------------|------|------|----|
| Missouri Early Beardless | 6051 | 19.0 | 33 |
| Local Winter             | 6007 | 18.3 | 35 |
| Woodward Composite       | ---- | 14.3 | 35 |
| Wisconsin Winter         | 2159 | 14.1 | 34 |
| Michigan Winter          | 2036 | 13.7 | 34 |

Yields and test weights of spring barley varieties grown in triplicated 3-row plots at Woodward, Okla., 1937.

| Variety             | C.I.<br>No. | Yield<br>(Bu. per acre) | Bu. weight<br>(Lbs.) |
|---------------------|-------------|-------------------------|----------------------|
| White Smyrna        | 910         | 18.3                    | 46                   |
| Flynn selection     | 5911        | 17.8                    | 44                   |
| Vaughn              | 1367        | 14.2                    | 46                   |
| Atlas               | 4118        | 13.9                    | 42                   |
| California Mariout  | 1455        | 13.9                    | 40                   |
| Danne selection 113 | ----        | 12.7                    | 48                   |
| Stavropol selection | 5913        | 12.5                    | 46                   |
| Trebi               | 936         | 10.6                    | 41                   |
| Sandrel             | 937         | 10.3                    | 39                   |

Yields and test weights of spring oat varieties grown in triplicated 3-row plots at Woodward, Okla., 1937 [Rows 8 foot long]

| Variety                 | C.I.<br>No. | Hybrid No.          | Yield<br>(Grams per row) | Bu. weight<br>(Lbs.) |
|-------------------------|-------------|---------------------|--------------------------|----------------------|
| Fulghum x Markton       | 3160        | Kans. sel. 314138   | 88                       | 33                   |
| Kherson selection       | 459-6-4     | -----               | 87                       | 30                   |
| Kanota x Markton        | ----        | Kans. sel. 313769   | 83                       | 30                   |
| Fulghum x Markton       | ----        | Kans. row 1275      | 81                       | 30                   |
| Do                      | ----        | Kans. sel. 303534   | 80                       | 30                   |
| Do                      | ----        | Kans. row 1284      | 80                       | 30                   |
| Do                      | ----        | Kans. sel. 314149   | 80                       | 31                   |
| Do                      | ----        | Kans. sel. 303652   | 78                       | 29                   |
| Do                      | 3160        | -----               | 78                       | 28                   |
| Fulghum x Navarro       | 3145        | -----               | 78                       | 29                   |
| Fulghum x Markton       | ----        | Kans. sel. 303633   | 77                       | 27                   |
| Do                      | ----        | Kans. sel. 303655   | 76                       | 28                   |
| Kanota x Markton        | ----        | Kans. sel. 313896   | 75                       | 28                   |
| Richland x Fulghum      | 3148        | Kans. sel. 303489   | 74                       | 28                   |
| Kanota x Markton        | ----        | Kans. sel. 322629   | 74                       | 26                   |
| Do                      | ----        | Kans. sel. 322672   | 72                       | 27                   |
| Fulghum x Markton       | ----        | Kans. sel. 303636   | 70                       | 26                   |
| Navarro x Fulghum       | ----        | Kans. 6126          | 70                       | 26                   |
| Fulghum x Markton       | 3220        | Kans. Sta. no. 6136 | 68                       | 26                   |
| Fulghum selection       | ----        | Kans. sel. 301884   | 67                       | 24                   |
| Fulghum x Markton       | ----        | Kans. 6138          | 65                       | 24                   |
| Danne selection 119     | ----        | -----               | 65                       | 24                   |
| Kherson selection       | 459-2-7     | -----               | 64                       | 24                   |
| Fulghum                 | 708         | -----               | 63                       | 23                   |
| Richland x Fulghum      | 3149        | Kans. sel. 303439   | 63                       | 23                   |
| Columbia                | 2820        | -----               | 63                       | 24                   |
| Kherson                 | 459         | -----               | 63                       | 23                   |
| Kherson selection       | -----       | 3008                | 63                       | 23                   |
| Nortex                  | 2382        | -----               | 62                       | 23                   |
| Fulghum x Markton       | ----        | Kans. sel. 303644   | 61                       | 22                   |
| Fulghum selection       | ----        | H.C. 75             | 61                       | 22                   |
| Burt selection          | ----        | 5220-6              | 61                       | 22                   |
| Kanota                  | 839         | -----               | 59                       | 22                   |
| Fulghum selection       | ----        | H.C. 77             | 59                       | 21                   |
| Richland x Fulghum      | ----        | Kans. sel. 321781   | 59                       | 21                   |
| Danne selection 94      | ----        | -----               | 59                       | 22                   |
| Danne selection         | ----        | Kans. 301787        | 59                       | 22                   |
| Fulghum x Green Russian | 3161        | -----               | 57                       | 21                   |
| Fulghum selection       | 3228        | H.C. 713            | 56                       | 20                   |

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (August 2)

Dry weather favorable for ripening and harvesting of cereal crops prevailed during the last half of July. The total precipitation during this period was .16 of an inch. Maximum temperature was 97° on the 21st and minimum 48° on the 27th.

Harvesting of the spring wheat nursery began July 24 and is now complete except for late sown material in short rows. Harvesting of the wheat, oat, and barley plots was completed during this period. Threshing of both plots and nursery should be under way in a few days.

Rust continued to develop on wheat until the plants ripened. Stem rust was very heavy on the most susceptible varieties and the grain is badly shriveled. Marquis was severely rusted, but the injury to the grain by rust apparently was less severe than in 1935. Ceres was less heavily rusted than Marquis and showed correspondingly less injury to the grain. Many strains of Hope or H-44 parentage were practically rust-free.

Early flax varieties in plots probably will be ready to harvest in a few days but most varieties will not be ready for two weeks or more. Flax in nursery rows is in full bloom and therefore will not be ready to harvest until the middle of September.

Visitors during the latter half of July included Messrs. G. A. Wiebe, J. Allen Clark, A. C. Dillman, and K. S. Quisenberry.

So far the season of 1937 has been characterized by a great variety of conditions and hazards adverse to plant life. Precipitation up to the end of April provided barely sufficient moisture for adequate germination of seed sown before May 5. From May 5 until May 28 surface soil moisture was inadequate for germination of seed. After May 28 precipitation was sufficient and fairly well distributed for development of crops that escaped other hazards.

Freezing temperatures on May 12 caused severe injury to oats and barley and some to wheat. High winds in May caused soil blowing, especially in fields where the plants were frozen to the ground.

Cutworms were more numerous than observed in any other season during the past 23 years and caused severe damage not only to flax but also to wheat, oats, barley, and corn, especially where stands were thin. Grasshoppers were more numerous than in any other year and caused much damage to crops, especially where stands were thin. Several other species of insects, usually not prevalent or abundant in this locality, caused damage to crops.

The precipitation for the first seven months of the year was 11.98 inches, which is about 1 1/4 inches above the average for the past 24 years.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)  
(August 2)

Favorable weather with moderate temperatures prevailed during most of July with plenty of rain during the first half of the month and plenty of sunshine during the latter half. A total of 2.74 inches of rain fell in July. A rain and windstorm last night added 0.64 inch. Local hailstorms are reported.

The harvesting of field plots of wheat, oats, barley, and rye varieties is completed and red rows will all be harvested in a few days. Grain apparently is of good quality except late varieties of rust-susceptible wheat, which will be shriveled somewhat by rust.

Snut counts being made in the bunt nursery show a heavy infection of this disease on susceptible varieties. Some hybrid rows are approximately free from both rust and bunt.

Official visitors from the Division of Cereal Crops and Diseases this month have been Messrs. G. A. Wiebe, J. Allen Clark, and K. S. Quisenberry.

#### UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward)  
(August 2)

Weather conditions in July were generally favorable for crop growth. There was an abundant supply of moisture for this area, totaling 2.20 inches as compared to 0.64 inch for a 17-year average. Some of the winter wheat fields, as well as early seeded spring barley, ripened during the latter part of the month. Little harvesting, however, has been done up to date.

The writer and Mr. D. C. Tingey made a rather extensive inspection tour of the State. Commercial fields of new varieties were carefully checked against competitive standard varieties in about 100 fields scattered throughout the State. In almost every case the new varieties of barley and wheat gave promise of superior characters. A large number of these fields will be certified and the seed made available to the farmers of the State. Dr. M. A. McCall spent the day of the 16th visiting members of the station staff and experimental nurseries. Dr. H. A. Rodenhiser was a Station visitor from July 22 to 24, during which time he visited the nursery plots and made counts on a series of wheat varieties artificially smutted. Dr. R. J. Evans, Prof. A. F. Bracken, Prof. A. F. Tingey, and the writer attended the meetings of the Western Branch of the American Society of Agronomy held at Bozeman, Mont., July 19 to 21.

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## C E R E A L   C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

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Vol. 29

August 25, 1937

No. 13

Personnel (August 11-25) and Field Station (August 1-15)

### PERSONNEL ITEMS

Mr. Charles E. Chambliss left Washington on August 21 to spend about three weeks in a study of wild rice on Indian reservations in Minnesota and Wisconsin in cooperation with the Bureau of Indian Affairs.

Mr. Guy W. Collins and Mr. James H. Kampton will leave Washington the latter part of August for points in Illinois, Arizona, California, New Mexico, Texas, Louisiana, Georgia, and South Carolina to make pollinations and take notes on plantings of corn and teosinte.

Dr. Merle T. Jenkins is on an extended trip in the corn-growing areas of the United States in the interests of cooperative corn breeding investigations.

Mr. Hugh S. Smith left Washington on August 26 for a 2-month trip in Ohio, Indiana, Illinois, Iowa, Nebraska, Kansas, Colorado, Utah, Idaho, California, Oregon, Washington, Montana, North Dakota, Minnesota, and Wisconsin to inspect business procedure and fiscal records of field personnel of the Division of Cereal Crops and Diseases and to assist in improving fiscal procedure.

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### CORRECTION

In the Cereal Courier, vol. 29, no. 12, August 10, 1937, the date on which Mr. Jenkin W. Jones left Washington was given as August 19. This should have been August 9.

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#### RECENT PUBLICATIONS

✓ Effect of Seed Treatments on Seedling Emergence, Severity of Seedling Blight, and Yield of Rice. E. M. Cralley and E. C. Tullis. Ark. Agr. Expt. Sta. Bull. 345, 24 pp., 1 fig. June 1937. (Cooperation between the Division of Cereal Crops and Diseases and the Arkansas Agricultural Experiment Station.)

✓ Inheritance of Resistance to Pythium Root Rot in Sorghum. D. H. Bowman, J. H. Martin, L. E. Melchers, and John H. Parker. Jour. Agr. Research 55(2): 105-115, figs. 1-4. July 15, 1937. (A joint contribution from the Departments of Botany and Agronomy, Kansas Agricultural Experiment Station, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture.)

✓ Breeding Winter Oats Resistant to Crown Rust, Smut, and Cold. H. C. Murphy, T. R. Stanton, and Harland Stevens. Jour. Amer. Soc. Agron. 29(8): 622-637. August 1937. (Results of cooperative investigations conducted by the Division of Cereal Crops and Diseases and the Iowa and Idaho agricultural experiment stations.)

✓ Male Sterility in Sorghum: Its Possible Utilization in Production of Hybrid Seed. J. C. Stephens. Jour. Amer. Soc. Agron. 29(8): 690-696, figs. 1-2. August 1937. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Texas Agricultural Experiment Station at Texas Substation No. 12, Chillicothe, Texas.)

✓ New or Noteworthy Parasitic Species of Fungi Imperfecti in Oregon. Roderick Sprague. Mycologia 29(4): 426-433. July-August, 1937. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Department of Botany, Oregon Agricultural Experiment Station.)

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#### LEAVE FOR PART-TIME EMPLOYEES

The leave regulations established by Executive Order provide that "part-time or intermittent employees" shall not receive leave. This includes employees on a "when actually employed" basis, whether employed under letter of authorization or appointment. They are entitled to no leave of any sort.

Agents or classified employees, whose salaries are paid in part by the Government and in part by a cooperating agency, but serving full time, are entitled to leave. A half-time agent who gives only one-half of his time to the work for which he is employed is a "part-time" employee and, therefore, not entitled to leave.

H. S. SMITH

Jr. Administrative Assistant.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (August 17)

The weather during the first half of August was generally hot and dry except for two good rains of about half an inch each.

The wheat, oat, and barley varietal plots and the wheat nursery material have been threshed with the exception of some late-sown short rows not yet harvested. Yields have not yet been computed.

Visitors included Messrs. J. Allen Clark and T. R. Stanton.

The maximum temperature was 104° and the minimum, 52°.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)  
(August 17)

The threshing of cereal plots is completed with the exception of proso and safflower and the nursery threshing is well along. Yields are low, as expected, those of the regional spring wheat nursery varying from 12.1 bushels for Ceres to 4.8 bushels for Renown. Yields from field plot varieties ranged from approximately 9 bushels for Camus, Ceres, and Comet to 4 bushels for Haynes. Yields from the best hybrid varieties in rod rows were from 16 to 18 bushels. Prolific spring rye yielded 19.3 bushels per acre while winter varieties yielded from 4 to 7 bushels, giving relative yields different from usual.

Yields from replicated field plots of spring wheat are given in the accompanying table.

Official visitors from this Division during the past two weeks were Messrs. J. Allen Clark and T. R. Stanton.

Acre yields of spring wheat varieties in four 1/57.6-acre plots at the Dickinson Substation in 1937.

| <u>Variety</u>         | <u>C. I. No.</u> | <u>Yield</u> <sup>1/</sup><br><u>(Bu. per acre)</u> |
|------------------------|------------------|-----------------------------------------------------|
| Canus                  | 11637            | 9.0                                                 |
| Ceres                  | 6900             | 8.7                                                 |
| Ccmet                  | 11465            | 8.7                                                 |
| Ceres x Hope-Florence  | 11872            | 8.5                                                 |
| Do                     | 11708            | 7.9                                                 |
| Thatcher               | 10003            | 7.9                                                 |
| Marquis                | 3641             | 7.8                                                 |
| Hope x 1656.97         | 11471            | 7.7                                                 |
| Hope x Ceres (1098)    | 11428            | 7.2                                                 |
| Reliance               | 7370             | 7.2                                                 |
| ----                   | 11801            | 7.1                                                 |
| Hope                   | 8178             | 6.9                                                 |
| Apex                   | 11636            | 6.6                                                 |
| Supreme                | 8026             | 6.3                                                 |
| Renown                 | 11709            | 6.0                                                 |
| Hope x Reliance (1131) | 11435            | 5.8                                                 |
| Reward                 | 8182             | 4.7                                                 |
| Red Fife               | 3329             | 4.1                                                 |
| Haynes                 | 2874             | 4.1                                                 |
| <u>Durum</u>           |                  |                                                     |
| K-132                  | 8383             | 7.0                                                 |
| Kubanka                | 1440             | 6.9                                                 |
| Mindum                 | 5296             | 5.9                                                 |
| Pentad                 | 3322             | 5.4                                                 |

<sup>1/</sup> Yields subject to slight change when given final check.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO  
(Wheat Improvement, G. S. Smith) (August 9)

Harvesting of the yield nurseries at Fargo is pretty well completed and cutting at Langdon will begin next week. Harvesting and classification of later-sown hybrid material will not be completed for some time.

The stem-rust infection in both nurseries is very heavy and nice comparative differences are evident. Moisture and temperatures during July have been more favorable than in 1935 so the comparisons are more satisfactory. Stem-rust damage to the spring wheat crop has been very severe. Thatcher is escaping rust injury and doing very well in the Red River Valley.

Stem rust has been unusually heavy this season on Monad, a "resistant" durum. Readings as high as 30 percent have been recorded on nursery rows, whereas 5 percent is about as high as it has ever been observed. Pentad red durum is not so heavily infected, although it, too, carries some rust, more than usual, even for an epidemic season. Mindum and Kubanka check rows range from 50 to 100 percent with a susceptible type reaction. Whether or not the performance of Monad is due to new physiologic forms of rust has not yet been determined. Aside from this, the varieties of durum range in about the same order for resistance as in other years of lesser infection.

A considerable infection of Hessian fly has been discovered in the nursery.

MONTANA

AGRICULTURAL EXPERIMENT STATION, BOZEMAN (Wheat Improvement,  
R. H. Bamberg) (August 12)

Crop conditions continue to be excellent in the vicinity. Yields of winter wheat both on irrigated lands and on the dry lands in the Valley will be very heavy. Much of the dry land wheat is either in the shock or being combined. The winter wheat plots on the Station are being cut today and also some of the varieties in the nursery.

Spring grains are still very green with the exception of barley, some of which is almost ready to cut. Later planted nurseries are in danger of being frosted before maturity unless conditions remain good for maturing.

At Moccasin the winter wheat plots were cut between July 23 and 28 and the earliest spring wheats on August 4. Yields are very low but the grain is plump. Spring wheats were too short to cut with a binder so quadrats are being taken in the plots.

OREGON

SHERMAN BRANCH EXPERIMENT STATION, MORO (Cereal Agronomy, D. E. Stephens) (August 21)

Harvesting on the Station is completed. Yields of winter wheat were variable on account of uneven stands caused largely by too deep seeding last fall. Uneven snow cover from drifting last winter also was responsible for some unusual variations in plot yields this season.

The total precipitation from Aug. 1, 1937, to date was 10.28 inches, or nearly 1 inch less than normal. In June there were 2.32 inches of rain, the highest June rainfall on record here. These rains came a little too late for the early maturing winter wheats, but all spring grains showed a marked improvement after the 10-day rainy period from June 14 to 23.

The following tables show the yields obtained this year from the plot varietal trials with wheat, barley, and oats.

Average yield of winter wheat varieties grown in duplicate 1/20th-acre plots on the Sherman Branch Experiment Station, Moro, Oreg., 1937.

| <u>Variety</u>            | <u>C. I. No.</u> | <u>Yield</u><br>( <u>Bu. per acre</u> ) |
|---------------------------|------------------|-----------------------------------------|
| Turkey selection          | 11425            | 26.9                                    |
| Hybrid 128                | 4512             | 26.4                                    |
| Fortyfold x Hybrid 128    | 11755            | 26.3                                    |
| Cheyenne                  | 8885             | 26.0                                    |
| Hybrid 128 x White Odessa | 11607            | 26.0                                    |
| Golden                    | 10063            | 25.8                                    |
| Turkey (local)            | 4429             | 25.4                                    |
| Kharkof                   | 1412             | 25.3                                    |
| Rio                       | 10061            | 24.1                                    |
| Turkey                    | 1571             | 24.0                                    |
| Turkey selection          | 11424            | 24.0                                    |
| Oro                       | 8220             | 23.5                                    |
| Rex                       | 11689            | 22.1                                    |
| Fortyfold x Federation    | 11693            | 21.7                                    |
| Triplet                   | 5408             | 21.0                                    |
| Relief                    | 10082            | 21.0                                    |
| Federation                | 4734             | 20.5                                    |
| Blackhull                 | 6251             | 20.4                                    |
| Ridit                     | 6703             | 18.5                                    |

Average yield of spring wheat varieties grown in quadruplicate 1/20th-acre plots on the Sherman Branch Experiment Station, Moro, Oreg., 1937.

| <u>Variety</u>          | <u>C. I. No.</u> | <u>Yield</u><br>( <u>Bu. per acre</u> ) |
|-------------------------|------------------|-----------------------------------------|
| Sunset x Boadicea       | 11706            | 32.5                                    |
| Hard Federation 71      | 8256             | 30.4                                    |
| Hard Federation 31      | 8255             | 30.3                                    |
| Baart x Hard Federation | 11615            | 28.5                                    |
| Onas                    | 6221             | 28.2                                    |
| Federation              | 4734             | 27.7                                    |
| White Federation        | 4981             | 27.6                                    |
| Baart                   | 1697             | 24.6                                    |
| Pacific Bluestem        | 4067             | 22.6                                    |
| Marquis                 | 4158             | 22.4                                    |

Average yield of spring barley varieties grown on the Sherman Branch Experiment Station, Moro, Oreg., 1937.

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| <u>Variety</u>            | <u>C. I. No.</u> | <u>Yield</u><br><u>(Bu. per acre)</u> |
|---------------------------|------------------|---------------------------------------|
| Peruvian selection 19     | 935-19           | 64.2                                  |
| Flynn selection 37        | 5918             | 53.3                                  |
| Composite Cross selection | 5449             | 47.0                                  |
| Meloy selection 3         | 4656             | 46.7                                  |
| Afghanistan               | 4173             | 35.5                                  |
| Awnless                   | 5631             | 35.5                                  |

Average yield of spring oat varieties grown in quadruplicate 1/20th-acre plots on the Sherman Branch Experiment Station, Moro, Oreg., 1937.

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| <u>Variety</u>           | <u>C. I. No.</u> | <u>Yield</u><br><u>(Bu. per acre)</u> |
|--------------------------|------------------|---------------------------------------|
| Carleton                 | 2378             | 59.7                                  |
| Markton x Ligowa         | 3025             | 55.3                                  |
| Markton                  | 2053             | 53.7                                  |
| Markton x Scottish Chief | 3022             | 51.5                                  |
| Richland                 | 787              | 48.4                                  |

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## CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)



Vol. 29

September 10, 1937

No. 14

Personnel (Aug. 26 - Sept. 10) and Field Station (Aug. 16 - 31)

### PERSONNEL ITEMS

Mr. Bruce Caldwell is harvesting field plantings of corn and teosinte at the U. S. Regional Vegetable Breeding Laboratory, Charleston, S. C. He left Washington September 7 to be gone about 10 days.

Dr. Charlotte Elliott took notes on bacterial wilt of corn in the cooperative experiments at Mineola, Long Island, and Yonkers and Geneva, N. Y., on August 27 and 28.

Mr. Robert W. Leukel left Washington August 29 for a months trip in Texas, Oklahoma, Kansas, and Colorado to study sorghum diseases in the field, to take data on cooperative sorghum experiments, and to collect specimens of smut and other disease material for future study in the laboratory. He will also consult State and Federal workers regarding cooperative sorghum disease investigations.

Dr. Marcus M. Rhoades is in Wooster, Ohio, to consult with Mr. G. H. Stringfield and Dr. R. D. Lewis regarding cooperative corn investigations in Ohio. He will return to Washington about September 14.

### RECENT PUBLICATIONS

Experiments with Flax in Utah. R. W. Woodward, D. C. Tingey, and A. C. Dillman. Utah Agr. Expt. Sta. Bull. 278, 12 pp. July 1937. (Contribution from the Department of Agronomy of the Utah Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Rhynchosporium Scald of Barley, Rye, and Other Grasses. Ralph M. Caldwell. Jour. Agr. Research 55(3): 175-198, pls. 1-4, figs. 1-4. August 1, 1937. (G-1057). (Cooperative investigations by the Division of Cereal Crops and Diseases and the Departments of Plant Pathology and Botany of the University of Wisconsin, and the Department of Botany, Purdue Agricultural Experiment Station.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins)  
(Sept. 3)

The early maturing portion of the commercial rice crop was harvested during August. Frequent rains, however, retarded threshing operations. Weather conditions also reduced the quality of the grain.

The late maturing portion of the commercial rice crop gives promise of good average yields.

Heavy rains in the last half of the month greatly relieved the irrigation situation by lowering the salt content in the water in the streams and raising the water levels in the fields. The indications are that there will be sufficient fresh water for the remainder of the season.

The weather conditions were about normal. The maximum temperature was 95°, the same as last year. The minimum temperature was 70°, or 3° higher than last year. The average mean temperature was 82°, or 1° lower than for August 1937.

The total precipitation of 4.17 inches is 0.54 inch more than last year and 1.20 inches less than the 27-year average for the month of August.

Dr. S. Avigdor, Chef des Services de l'Inspection, Fonde de Pouvoirs, Credit Foncier, Le Caire, Egypt, was a station visitor August 20.

IOWA

AGRICULTURAL EXPERIMENT STATION, AMES (Corn Breeding, A. A. Bryan)  
August 24)

The corn pollinating work was completed August 16. The season was fairly satisfactory with light showers falling during the period. Pollen production was excellent on most lines. About 30,000 hand pollinations were made. The corn plants for the most part made normal growth. Two or three rather hot dry spells caused a small amount of firing, but this is of some advantage in selection.

We now have the equipment necessary for irrigating an area of 2.2 acres. This will be used for increasing the seed of fixed lines, for producing single-crossed seed, and for special items where it is particularly desirable to reduce the uncertainty of weather to a minimum. The equipment was not installed in time for use this year. Although rains were fairly well distributed, we believe that one or two irrigations would have been worth while.

## MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausamus) (Sept. 4)

Threshing of the winter wheat nurseries and field plots has been completed. The yields and the quality of grain were very good. There was some shriveling of the grain at University Farm, owing to the drought in June and July.

The spring cereals are now being threshed. As a result of the drought the yields are low and the quality of the grain poor. Varieties susceptible to stem rust were severely injured.

The weather in August was hot and dry. The rainfall was 4.1 inches as compared with a normal of 3.12 inches. Most of the rain (3.15 inches) fell in two showers on August 2 and 3. This month has been the hottest August on record, with a monthly mean temperature of 77.7°. The maximum temperature was 97°, recorded on August 5, and the minimum was 55° on August 21.

## TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Sept. 1)

The weather of the first half of August was very disagreeable. Maximum temperatures were 100° or above on all of the first 14 days. The absolute maximum was 108°, which equals the all-time record with the exception of the maximum of 113° set in 1936. The last half of the month was much cooler, the maximum reaching 100° on only one day. The mean temperature was 86.2°, or 2.2° above normal. No effective precipitation was received until the 30th. The total for the month was 2.56 inches, which is only 0.10 inch below normal.

Because of the very dry weather plowing of fall seedbeds was completed with difficulty. Growing crops were severely injured throughout this area by the heat and drought. Much of the cotton opened more or less prematurely.

All yields for the 1936 crop have now been compiled and plans are being made for seeding the 1937 crop. Experiments on resistance to lodging are being made on material from the advanced and preliminary nurseries.

## OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (September 1)

A rain of 1.63 inches on the 19th and 20th of August, followed by cool cloudy weather changed the prospects for sorghums and broomcorn from zero to almost average. The earlier plantings were damaged by the heat and drought and are recovering very slowly. The late plantings are taking full advantage of the moisture and may give fair yields.

At present the work on the sorghum and broomcorn project is bagging seed heads and making crosses. Sparrows are troublesome, as the Station has the only ripening sorghums in the vicinity.

The maximum temperature for the last half of August was 103° on the 17th and the minimum, 65° on both the 20th and 21st. The precipitation was 1.87 inches, or a total of 2.28 inches for August.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (August 28)

So far the latter half of August has been very dry. The total precipitation during this period is 0.06 inch.

Harvesting and threshing of the wheat nursery material and cleaning of grain from the cereal varietal plots are completed.

Acre yields from wheat, oat, and barley varietal plots are shown in the accompanying tables.

Frost damage, stem rust, and smut infection are responsible for some of the differences.

The flax varietal plots have been harvested; the flax nursery is ripening rapidly.

Average yield and test weight of spring wheat varieties in triplicate 66th-acre plots at Mandan, N. Dak., 1937

| Variety                  | C. I.<br>No. | Yield<br>(Bu. per acre) | Test weight<br>(Lbs. per bu.) |
|--------------------------|--------------|-------------------------|-------------------------------|
| Hard Red Spring          |              |                         |                               |
| Ceres x Hope-Florence    | 11708        | 16.8                    | 58.5                          |
| Thatcher                 | 10003        | 15.0                    | 55.5                          |
| Nord                     | 11801        | 14.2                    | 54.0                          |
| Ceres x Hope-Florence    | 11712        | 14.1                    | 59.0                          |
| Ceres x Hope-Florence    | 11872        | 13.5                    | 58.0                          |
| Reliance x Hope          | 11433        | 12.0                    | 60.0                          |
| Hope x Ceres             | 11428        | 11.5                    | 57.0                          |
| Apex                     | 11636        | 11.0 <sup>1/</sup>      | 56.5                          |
| Hope x Ceres             | 11432        | 10.5                    | 57.5                          |
| Reliance                 | 7370         | 10.4                    | 55.0                          |
| Hope x Hard Federation   | 11798        | 9.5                     | 53.0                          |
| Comet                    | 11465        | 9.1                     | 51.5                          |
| Hope x Ceres             | 11786        | 9.0                     | 54.5                          |
| Hard Federation x Hussar | 11792        | 8.1                     | 45.0                          |
| Ceres                    | 6900         | 8.0                     | 55.5                          |
| Hope                     | 8173         | 7.7                     | 53.0                          |
| Reward                   | 8182         | 7.3                     | 55.0                          |
| Renown                   | 11709        | 6.8                     | 54.0                          |
| Marquis                  | 3641         | 6.4                     | 52.0                          |
| H-44 x Marquis           | 11643        | 6.3                     | 55.5                          |
| Komar x Hussar           | 11715        | 6.0                     | 52.0                          |
| Hope x 1656.97           | 11471        | 5.9                     | 57.5                          |
| Durum                    |              |                         |                               |
| Mindum                   | 5296         | 16.5                    | 62                            |
| Kubanka                  | 1440         | 14.0                    | 61                            |

<sup>1/</sup> Yield from one plot only.

Average yield and test weight of oat varieties grown in triplicate 66th-acre plots at Mandan, N. Dak., 1937

| Variety               | C. I.<br>No. | Yield<br>(Bu. per acre) | Test weight<br>(Lbs. per bu.) |
|-----------------------|--------------|-------------------------|-------------------------------|
| Iogold                | 2329         | 29.7                    | 32.5                          |
| Markton               | 2053         | 28.5                    | 36.5                          |
| N. D. 22005           | 2344         | 28.0                    | 34.5                          |
| Sixty-Day             | 165          | 27.8                    | 30.5                          |
| Rainbow               | 2345         | 27.8                    | 33.5                          |
| Gopher                | 2027         | 27.1                    | 35.0                          |
| Richland selection 52 | 3008         | 26.5                    | 34.5                          |
| Anthony               | 2743         | 24.2                    | 35.5                          |
| S. Dak. 334           | 2884         | 23.9                    | 33.5                          |
| Rusota                | 2343         | 23.5                    | 35.0                          |
| Victory               | 560          | 16.0                    | 37.0                          |
| Carlton               | 2378         | 15.6                    | 34.0                          |

Average yield and test weight of barley varieties grown in triplicate 66th-acre plots at Mandan, N. Dak., 1937

| Variety         | C. I.<br>No. | Yield<br>(Bu. per acre) | Test weight<br>(Lbs. per bu.) |
|-----------------|--------------|-------------------------|-------------------------------|
| Ezond           | 6265         | 19.8                    | 42.5                          |
| Glabron (mixed) | 4577         | 15.8                    | 39.5                          |
| Odessa          | 182          | 15.8                    | 43.0                          |
| Trebi           | 936          | 14.3                    | 42.0                          |
| Steigum         | 907          | 13.6                    | 41.0                          |
| Featherston     | 1120         | 12.0                    | 42.0                          |
| Hannchen        | 531          | 10.1                    | 41.0                          |
| Wisconsin 38    | 5105         | 9.2                     | 38.0                          |
| Velvet          | 4252         | 8.6                     | 39.5                          |
| Horn            | 926          | 7.0                     | 42.5                          |

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)  
(September 2)

The month of August has been warm and dry with an abundance of sunshine that aided in bringing to maturity a considerable acreage of late-sown forage crops, millet, proso, sorghum, and corn. These will help to offset the comparatively low yields obtained from cereal crops sown in the spring. Corn planted this year from the first to the middle of June is now ripe enough for saving seed ears, whereas corn of the same varieties planted the middle of May is frequently still green at this time.

Threshing at the Substation is completed except for plant row material. Yields and other data are being computed and assembled. Nursery seed is being cleaned and test weights obtained.

The precipitation for August was 1.04 inches. The maximum temperature was 105° on the 27th; the minimum was 45°.

Director H. C. Hanson was an official visitor at the Substation yesterday.

# OREGON

AGRICULTURAL EXPERIMENT STATION, CORVALLIS (Foot Rots of Wheat, Roderick Sprague) (August 23)

In the plots on High Prairie, Wash., there was very little footrot this past season but an abundance of "low" smut. All varieties and selections showing low smut in the footrot nursery were discarded, leaving a few selections and the resistant varieties Rex and Hymar. Rex (C. I. 10065) and Hymar selection (C. I. 11606) yielded about the same, Rex selection (M. 11) being somewhat higher in yield and Hymar (C. I. 11605) somewhat lower than the first two.

Because of its susceptibility to low smut the footrot-adapted Holland wheat, which is now the leading local variety on High Prairie (3,000 acres), will eventually have to be replaced by Rex and Hymar. Both of these varieties are no more susceptible than Hybrid 128 and have given some indication of being slightly less susceptible.

The average yield of winter barleys in the nursery are as follows:

| Variety        | Number     | Yield in grams<br>per 8-foot row |
|----------------|------------|----------------------------------|
|                |            | Av.                              |
| Olympia        | Wash. 2799 | 424.3                            |
|                | Wash. 2800 | 373.8                            |
| "Irish Barley" | Local      | 315.0                            |
| Winter Club    | Wash. 957  | 291.5                            |

The relative yield of these varieties has been the same for five years. The variety Olympia is almost certainly a distinct improvement over any so far tested in this footrot area. One seed field of 3 acres of this variety was harvested this past season.

# UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (September 2)

Practically all the small grains were harvested and threshed in August. Yields of barley and flax were somewhat lower, proportionately, than those of oats. Few of the wheats yielded over 60 bushels per acre on the irrigated lands; barley varieties seldom exceeded 80 bushels, while a number of the oat varieties yielded 120 bushels or more. The highest flax yield was 23.1 bushels per acre. About the middle of July severe storms caused considerable lodging in parts of the nursery. Later a heavy rust infection appeared to further reduce yields. Winter wheat yields were variable, some sections having exceptionally good crops while other areas were poor. The good yields seemed to be closely associated with early fall emergence.

Artificial smut inoculation plots in both wheat and barley were considered most encouraging this season. Susceptible varieties showed smut percentages closely approximating 100 percent.

Messrs. B. B. Bayles and C. A. Suneson were Station visitors in the early part of August. Mr. O. A. Vogel spent two days in Logan the latter part of the month.

# CALIFORNIA

BIGGS RICE FIELD STATION, BIGGS (Rice Agronomy, L. L. Davis)  
(September 2)

Weather conditions in California have been favorable this season for the development of rice. The average maximum temperatures for July and August, respectively, were 97.0 and 95.7° and the average minimum temperatures for July and August, 62.1 and 58.8°. The highest temperature recorded this summer was 108° on August 12. There has been no rain since June 16.

Most of the rice is fully headed and harvest should begin about October 1. Nearly average yields are expected on the Station.

# ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartel) (September 2)

The precipitation at Tucson for August was 1.29 inches, as compared with a normal of 2.30. The mean temperature of 85.9 was 2.0° above the normal for August. A maximum temperature of 106° was recorded on August 11.

A few of the earliest varieties of sorghum at Tucson are just beginning to head.

The average yield of barley varieties grown in three 1/32-acre plots at the Salt River Valley Experiment Station at Mesa were as follows:

| Variety                        | C. I.<br>No. | Yield<br>(Bu. per acre) |
|--------------------------------|--------------|-------------------------|
| Atlas x Vaughn (Ariz. No. 269) | ----         | 72.9                    |
| Sacramento                     | 4108         | 68.3                    |
| Scarab                         | 995          | 64.9                    |
| Atlas x Vaughn (Ariz. No. 257) | ----         | 64.5                    |
| Union (Beardless)              | 5976         | 60.7                    |
| Common Six-Row                 | 4625         | 58.0                    |
| Trebi                          | 936          | 57.5                    |
| Vaughn                         | 1367         | 57.2                    |

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# CEREAL COURIER

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Vol. 29

September 25, 1937

No. 15

Personnel (Sept. 11 - 25) and Field Station (Sept. 1 - 15)

## PERSONNEL ITEMS

Dr. M. A. McCall left Washington on September 18 for a field trip in Louisiana, Texas, Oklahoma, Kansas, and Nebraska to confer with personnel of the Division and officials of cooperating agricultural experiment stations relative to planning and progress of cereal research.

## RECENT PUBLICATIONS

✓ Treat Seed Grain. A. G. Johnson, R. J. Haskell, and R. W. Leukel. Misc. Pub. 219 (revised), 7 pp., illus. 1937.

✓ Resistant Varieties of Sorghum and Corn in Relation to Chinch Bug Control in Oklahoma. Ralph C. Snelling and Reynold G. Dahms. Okla. Agr. Expt. Sta. Bull. 232, 22 pp., 9 figs. July 1937. (Cooperative project between the Divisions of Cereal Crops and Diseases, and Dry Land Agriculture, Bureau of Plant Industry; Division of Cereal and Forage Insect Investigations, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture; and the Departments of Entomology and Agricultural Chemistry Research, Oklahoma Agricultural Experiment Station.)

## FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

### ARKANSAS

AGRICULTURAL EXPERIMENT STATION, FAYETTEVILLE (Rice Diseases, E. C. Tullis) (Sept. 10)

Stem rot of rice is more severe in Arkansas this year than for the past two or three years. Numerous reports of loss from lodging in Early Prolific have been reported already this year.

Many fields of Early Prolific were ripe or had been cut by Sept. 1.

Cercospora leaf spot was about as abundant as it has been in the past. Some Helminthosporium leaf spot was found but very little more than average for the section.

*Piricularia oryzae* was found in varying amounts on all first-year rice (land seeded for the first time) and to a lesser degree on second year rice in the vicinity of Brinkley, Ark. All types of injury, that is, crown, culm, node, rachis, and leaf infections were found on first-year rice, but only leaf and rachis infections were observed on second-year rice. Specimens of the rotten-neck phase have also been received from Newport, Ark.

Reports of the occurrence of straighthead from the vicinity of Newport, Ark., have been received and a few typical specimens have been sent in for determination.

#### OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Sept. 16)

Seven rains, totaling 3.91 inches, have fallen since September 1. These in addition to 2.28 inches in August ended a long dry spell. Pastures, sowed feed, row crops, trees, and shrubs have revived wonderfully.

The Woodward Field Station weather records show maximum temperatures of 100° or over on 44 days this summer; 7 days in June, 22 days in July, and 15 days in August. 110° on August 9 was the maximum for the summer.

Many farmers seeded wheat late in August and early in September this year for pasture and to insure cover for sandy land. It is probable that most of the wheat seeding in this territory will be over by October 1.

Two early date-of-seeding tests have been made on the Station. One, made on September 1, emerged to good stands on the 5th. The other, made on September 15, is expected to emerge on September 19.

The maximum temperature for the first half of September was 98° on the 3d. The minimum was 56° on the 12th and 15th.

#### NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Sept. 16)

Harvesting of the flax 17-foot row nursery was completed Sept. 11. Most of the 5-foot rows and 2-foot rows, which were sown later, still remain to be harvested.

The precipitation for the first half of September was 1.30 inches, of which 1.29 inches occurred Sept. 5.

The maximum temperature was 94° on the 2nd and the minimum 37° on the 15th.



## CEREAL COURIER

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Vol. 29

October 10, 1937

No. 16

Personnel (Sept. 26-Oct. 10) and Field Station (Sept. 16-30)

### PERSONNEL ITEMS

Mr. Sydney Ellerton, of the School of Agriculture, Cambridge, England, is spending several days in the Department of Agriculture en route to Berkeley, Calif., where he will spend the winter. His special interest is wheat and forage plants.

Mr. L. W. Kephart spent several days in Pennsylvania early in October inspecting cooperative experiments in weed control with high-pressure spray machinery.

Dr. M. A. McCall returned to Washington on October 2 from a field trip in Texas, Kansas, Nebraska, and Missouri. From September 21 to 24 he accompanied representatives of the Division of Cotton and Other Fiber Crops and Diseases, the Division of Soil Fertility, and the Texas Agricultural Experiment Station in a tour of field experiments in the Texas black land area having to do with cotton root rot research. Stops were made at the United States Cotton Field Station, Greenville, Substation No. 5, Temple, the Soil Fertility laboratory at Austin, and various out-lying experiments conducted by representatives of the Division of Soil Fertility. Despite the baffling nature of the cotton root rot problem it was evident that progress is being made. Results indicate that the ultimate solution is tied up with the development of a balanced agriculture, involving sound rotation and fertility practices. The solution of such a problem naturally involves long and patient experimentation and no startling advances need be expected at any one time.

Conferences were also held with Messrs. McFadden, Atkins, and Beachell at College Station, Tex., on September 24 and 25. Satisfactory progress is being made in the phases of the cooperative cereal program in their charge.

At Manhattan, Kans., special attention was given to final arrangements for establishing the cooperative hard red winter wheat quality laboratory. Satisfactory progress is being made in the cooperative cereal disease program both in rust studies and in wheat foot rot research. A new project on the relationships of other soil micro-organisms to the wheat foot rot caused by *Ophiobolus graminis* is being initiated with the Division of Soil Microbiology and the Department of Bacteriology of the Kansas College and Station. Dr. John H. Parker and Mr. C. O. Johnston have affected a new set-up in their cooperative wheat improvement program, emphasizing the importance of stem-rust resistance. Following a series of bad years results from the cooperative corn program were more satisfactory this year. The new overhead irrigation system for the breeding plots proved very satisfactory.

At Lincoln, Nebr., conditions were very dry, so much so that fall sowings had not yet been made on September 29. From an administrative standpoint, the cooperative research in both the cereal and weed projects at Lincoln is in a very satisfactory condition. It is hoped that current unfavorable weather conditions will not seriously handicap the program for the coming year.

The time spent at Columbia, Mo., was so short that there was little opportunity to go over any very considerable part of the cooperative research. Following a series of unsatisfactory years the 1937 season gave more nearly normal results in the corn research with results encouraging to all concerned. Here, as elsewhere, cooperative relationships are most satisfactory.

Each visit to cooperating field stations emphasizes the quality of the work and the accomplishment of Division personnel. These facts, together with the firm position which each individual has made for himself with cooperating institutions, speak for themselves.

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#### RECENT PUBLICATIONS

✓ Popcorn Breeding. Arthur M. Brunson. U. S. Dept. Agr. Yearbk. 1937: 395-404, figs. 1-3. 1937.

✓ Quality in Durum Wheats and a Method for Testing Small Samples. C. C. Fifield, Glenn S. Smith, and J. F. Hayes. Cereal Chem. 14(5): 661-673, figs. 1-3. September 1937.

✓ The Error in Grain Yield Attending Misspaced Wheat Nursery Rows and the Extent of the Misspacing Effect. G. A. Wiebe. Jour. Amer. Soc. Agron. 29(9): 713-716, fig. 1. September 1937.

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FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins)  
(Oct. 6)

On the Station, cotton harvest had been completed by the end of September and the harvesting of rice was well advanced.

Ideal harvest weather prevailed the last three weeks. By the end of the month farmers had completed the threshing of early maturing rices and had practically finished cutting, and some had threshed, Blue Rose.

Minimum and mean temperatures in September were lower than usual. They approached very closely those of September 1932. The minimum of 50° was, however, 5° lower than the lowest in 1932. The maximum was 95°, the minimum, 50° and the average mean 78°.

The total precipitation of 2.12 inches fell on 8 of the first 12 days of the month, and was 0.40 inch more than for September 1936 and 1.84 inches less than the 26-year average for September.

Visitors included Messrs. A. Calloja, Sr., A. Calloja, Jr., and Alfredo Gunstella, of Vedado, Habana, Cuba.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Oct. 1)

After a precipitation of 3.91 inches in the first half of September none occurred in the second half. Sorghums and broomcorn grew rapidly during the rainy period but at present they are slowing up and there is a tendency to ripen. A few days of cool weather indicate the possibility of an early frost. Should frost hold off until the normal date, October 30, much sorghum will mature.

Some of the earlier varieties are harvested, seed heads are being selected and harvested from the nursery as they ripen, and the remaining plots of broomcorn will be harvested next week. Sparrows are destructive to maturing grain and crows have appeared to take their toll of grain and time.

Many yields will be higher than those of the last several years but will still be below average.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy,  
V. C. Hubbard) (Oct. 1)

Seed packeting for fall seeding is about completed. The September 1 and 15 early seedings in the date-of-seeding experiment are up to good stands and the October 1 seedings were made to-day. Nursery seeding will be started about October 11. The soil has dried out two to six inches since the early September rains. There was no precipitation during the last half of September.

The maximum temperature for September was 98° on the 3d. The minimum was 42° on the 26th and the mean, 73°. The total rainfall was 3.91 inches.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Oct. 1)

The flax varietal plots and the safflower plots were threshed Sept. 21. Yields were very low but more seed than was sown was recovered of most of the varieties and the seed appeared to be of good quality. Frost and drought in May, as well as cutworms and grasshoppers, were the factors chiefly responsible for the low yields. Acre yields and test weights are presented in the accompanying table.

The precipitation for the last half of September was 0.07 inch. Total precipitation for the first 9 months of 1937 was 14.69 inches, which is about 1 1/3 inches above the average for the past 23 years. The first killing frost this fall occurred on Sept. 16 with a temperature of 31°. Corn, sorghum, and tender garden plants were killed but flax appeared to be undamaged. The maximum temperature was 92° on the 21st and the minimum, 30° on the 24th.

Mr. H. S. Smith visited the Station Sept. 30.

Yield and test weight of flax and safflower varieties grown in triplicate 66th-acre plots at Mandan, N. Dak., 1937.

| Variety                                         | C. I.<br>No. | Yield<br>(Bu. per acre) | Test weight<br>(Lbs. per bu.) |
|-------------------------------------------------|--------------|-------------------------|-------------------------------|
| Flax:                                           |              |                         |                               |
| Walsh                                           | 645          | 3.0                     | 52                            |
| Hybrid 160 x 179                                | 496          | 2.1                     | 54                            |
| Hybrid 160 x 179                                | 745          | 1.9                     | 54                            |
| Pio                                             | 280          | 1.8                     | 53                            |
| Bolloy Golden                                   | 644          | 1.7                     | 54                            |
| Nat. Hybrid of C. I. 161                        | 744          | 1.7                     | 54                            |
| Nat. Hybrid of C. I. 161                        | 820          | 1.7                     | 54                            |
| Hybrid 10-2-59-3                                | 739          | 1.6                     | 54                            |
| Argentine selection 1-25-70                     | 764          | 1.6                     | 54                            |
| Bison (sown with press wheel)                   | 389          | 1.6                     | 54                            |
| Bison (without press wheel)                     | 389          | 1.4                     | 54                            |
| Hybrid Buda x (19x112)                          | 742          | 1.5                     | 55                            |
| Argentine selection 1-25-70<br>(Mur. No. 34148) | ---          | 1.5                     | 54                            |
| L. Golden                                       | 735          | 1.4                     | 51                            |
| Nat. Hybrid of C.I. 161 (Mur.<br>No. 34152)     | ---          | 1.4                     | 54                            |
| Sib No. 206                                     | 473          | 1.4                     | 55                            |
| Redwing selection (Mur. No. 34121)              | ---          | 1.3 <u>1/</u>           | 55                            |
| Buda                                            | 326          | 1.3 <u>1/</u>           | 54                            |
| Selection of C. I. 385 (Mur.<br>No. 34175)      | ---          | 1.2                     | 53                            |
| Buda selection                                  | 737          | .8 <u>1/</u>            | 55                            |
| Linota                                          | 244          | .7 <u>1/</u>            | 54                            |
| Redwing                                         | 499          | .6 <u>1/</u>            | 53                            |

Safflower:

|                 |               |    |
|-----------------|---------------|----|
| Special Russian | 4.4 <u>2/</u> | 41 |
| Spinoless       | 3.9 <u>2/</u> | 42 |

1/ Average of 2 plots.

2/ Safflower yields computed at 40 pounds per bushel.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (Sept. 30)

Nursery and field plot threshing was completed at Langdon on September 18 and at Fargo on September 23. Favorable weather for harvest and threshing prevailed and color of grain is generally good, an important consideration in making quality observations from the color of the seed.

Yields at both Fargo and Langdon ranged from almost nothing on very rust-susceptible varieties to 30 bushels per acre at Fargo and to well above 40 bushels per acre at Langdon in nursery rows. Test weights ranged from about 40 to 64 pounds per bushel.

Stem-rust injury to spring wheat in eastern North Dakota was in certain cases as severe as in 1935, but escapes from such injury were not uncommon because of the cooler temperatures in late July and August this season. Particularly surprising was the good quality of the durum crop, notably Mindum, which on many farms weighed well above 60 pounds although the yields generally were not high. Evidently with relatively cool weather and occasional showers, this variety was able to mature producing good grain despite stem rust readings of 40 to 60 percent. In the durum territory, test weights on Mindum were generally 2 to 5 pounds heavier than on comparably sown Thatcher, and 5 to 10 pounds heavier than on comparable Ceres and Marquis.

Percentage of stem rust, test weight, and average yield per acre of spring wheat varieties grown in triplicate 1/60th-acre plots at Langdon, N. Dak., 1937.

| Variety or Cross | C.I.<br>No. | Stem rust<br>(Percent) | Test Wt.<br>(Lbs. per bu.) | Av. yield<br>(Bu. per acre) |
|------------------|-------------|------------------------|----------------------------|-----------------------------|
|------------------|-------------|------------------------|----------------------------|-----------------------------|

Common:

|                               |       |    |      |      |
|-------------------------------|-------|----|------|------|
| Hope x Ceres, N. No. 1098-A   | 11428 | 10 | 60.5 | 31.6 |
| Ceres x Hope-Florence Ns 2693 | 11299 | 20 | 62.5 | 31.5 |
| Ceres x Hope-Florence Ns 2634 | 11708 | 10 | 62.0 | 31.4 |
| Ceres x Hope-Florence Ns 2592 | 11712 | Tr | 62.5 | 30.8 |
| Hope                          | 8178  | 0  | 58.0 | 30.1 |
| Reliance x Hope, N. No. 1110  | 11433 | 0  | 61.0 | 29.7 |
| Renown                        | 11635 | 2  | 61.5 | 29.4 |
| Apex                          | 11636 | 1  | 62.0 | 27.0 |
| Carleeds                      | 11801 | T  | 59.5 | 26.6 |
| Thatcher                      | 10003 | 10 | 59.5 | 26.2 |
| Konar                         | 8004  | 50 | 56.0 | 21.5 |
| Reward                        | 8182  | 85 | 60.0 | 19.4 |
| Ceres                         | 6900  | 65 | 54.5 | 18.9 |
| Marquis                       | 3641  | 80 | 53.0 | 16.7 |

Durum:

|                                          |       |      |      |
|------------------------------------------|-------|------|------|
| Mindum-Pentad x Mindum (Langdon 34)----- | 15    | 63.7 | 34.8 |
| Monad                                    | 3320  | 3    | 31.5 |
| Mindum x Monad (Langdon 12)              | 11776 | 5    | 29.9 |
| Mindum                                   | 5296  | 50   | 29.6 |
| Kubanka 49                               | ----- | 30   | 29.3 |
| Kubanka 75                               | 11541 | 60   | 26.7 |
| Kubanka                                  | 1440  | 40   | 25.7 |
| Golden Ball                              | 11477 | 20   | 22.7 |

MONTANA

AGRICULTURAL EXPERIMENT STATION, BOZEMAN (Wheat Improvement, R. H. Bamberg) (Oct. 2)

Harvesting of spring wheats was completed during the week beginning September 20. All field notes have been taken and about one-half of the nursery threshed. The grain is plump and heavy. Stem rust caused very little damage, although it was abundant on later varieties of the western white wheats.

Winter wheat has been threshed and fall seedings were made on September 9 and 10. Rains had put the soil in excellent condition and all the plots had emerged in one week. The grain was exceptionally heavy, the test weights being 61.3 to 64.0 pounds.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin)  
(Sept. 30)

A heavy rain is needed to put the soil in shape for fall seeding. Except for 0.17 inch of rain on August 30 and 0.30 inch on September 5, warm, dry weather has prevailed in this vicinity since harvest, so no seeding has been done because of the danger from weeds and thin stands. In some sections of eastern Oregon, where the precipitation was heavier, sowing was begun sometime ago and in many cases emergence has taken place.

Yields of cereals in 1937 were not particularly heavy, but sufficient moisture was present at the critical period to produce plump good-quality grain. The accompanying tables present yields and weights per bushel of winter wheat, spring wheat, barley, and oat varieties grown in field plots in 1937.

Average yield and weight per bushel of winter wheat varieties grown in four 53d-acre plots at the Pendleton Field Station, 1937.

| Variety                                   | C. I.<br>No. | Weight<br>(Lbs. per bu.) | Yield<br>(Bu. per acre) |
|-------------------------------------------|--------------|--------------------------|-------------------------|
| Rex selection M 1                         | 11689        | 62.0                     | 41.8                    |
| Hard Federation x Martin selection<br>P 5 | -----        | 60.3                     | 40.2                    |
| Rex selection M 2                         | 11690        | 61.0                     | 39.8                    |
| Federation                                | 4734         | 61.7                     | 38.9                    |
| Triplet                                   | 5408         | 63.0                     | 38.4                    |
| Fortyfold x Federation                    | 11693        | 60.0                     | 38.1                    |
| Turkey selection                          | 11424        | 63.2                     | 38.0                    |
| Rex                                       | 10065        | 61.5                     | 37.4                    |
| Kharkof                                   | 1442         | 62.8                     | 35.9                    |
| Golden                                    | 10063        | 60.0                     | 35.8                    |
| Rio                                       | 10061        | 63.3                     | 35.7                    |
| Ridit                                     | 6703         | 62.7                     | 35.7                    |
| Albit                                     | 8275         | 61.5                     | 35.3                    |
| Jenkin                                    | 5177         | 61.7                     | 34.5                    |
| Hymar                                     | 11605        | 62.0                     | 34.1                    |
| Oro                                       | 8220         | 63.3                     | 34.0                    |
| Hybrid 128                                | 4512         | 62.2                     | 33.5                    |
| Hybrid 128 x White Odessa                 | 11607        | 63.1                     | 33.2                    |
| Fortyfold                                 | 4156         | 60.7                     | 32.5                    |

Average yield and weight per bushel of spring wheat varieties grown in four 53d-acre plots at the Pendleton Field Station, 1937.

| Variety                                       | C.I.<br>No. | Weight<br>(Lbs. per bu.) | Yield<br>(Bu. per acre) |
|-----------------------------------------------|-------------|--------------------------|-------------------------|
| Sunset x Boadicea                             | 11706       | 62.0                     | 38.4                    |
| White Federation                              | 4981        | 62.2                     | 37.1                    |
| Federation x Bunyip selection 41              | 11874       | 60.8                     | 35.3                    |
| Onas                                          | 6221        | 60.1                     | 35.0                    |
| Federation                                    | 4734        | 61.5                     | 33.7                    |
| Marquis                                       | 3641        | 61.8                     | 33.1                    |
| Federation x Bunyip selection 49              | -----       | 60.8                     | 32.8                    |
| White Federation x Federation<br>selection 24 | -----       | 60.0                     | 32.6                    |
| Baart                                         | 1697        | 62.0                     | 32.1                    |
| Hard Federation 31                            | 8255        | 62.8                     | 30.1                    |

Average yield and weight per bushel of spring barley varieties grown in four 53d-acre plots at the Pendleton Field Station, 1937.

| Variety                   | C.I.<br>No. | Weight<br>(Lbs. per bu.) | Yield<br>(Bu. per acre) |
|---------------------------|-------------|--------------------------|-------------------------|
| Trebi                     | 936         | 48.8                     | 67.8                    |
| Flynn selection 37        | 5918        | 47.0                     | 61.9                    |
| Flynn selection 1         | 5911        | 47.0                     | 59.7                    |
| Meloy selection 3         | 4656        | 44.8                     | 58.3                    |
| Composite Cross selection | 5449        | 43.3                     | 57.4                    |
| Club Mariout              | 261         | 46.8                     | 55.2                    |

Average yield and weight per bushel of spring oat varieties grown in four 53d-acre plots at the Pendleton Field Station, 1937.

| Variety                  | C.I.<br>No. | Weight<br>(Lbs. per bu.) | Yield<br>(Bu. per acre) |
|--------------------------|-------------|--------------------------|-------------------------|
| Markton x Scottish Chief | 3022        | 34.8                     | 87.8                    |
| Carleton                 | 2378        | 36.3                     | 83.8                    |
| Markton x Ligowa         | 3025        | 38.0                     | 83.5                    |
| Sixty-Day x Markton      | 2352        | 36.3                     | 81.7                    |
| Markton x Idamine        | 2570        | 36.2                     | 81.3                    |
| Markton x Swedish Select | 3013        | 36.2                     | 80.0                    |
| Markton                  | 2053        | 35.5                     | 78.3                    |
| Markton x Victory        | 2591        | 37.0                     | 77.0                    |

#### UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Oct. 4)

Climatic relations have been quite ideal for harvesting and seeding cereal crops in September. The mean maximum temperature was 82.1° as compared to a mean of 76.1°. The precipitation for the month totaled 1.25 inches, most of which fell during one short storm. The first frost of the autumn followed the heavy storm with a minimum of 26° on September 25. This date approximates the average date of frost for the Station, which is September 29.

Much of the fall-sown grain is emerging to good stands although much is yet to be seeded. A part of the principal winter wheat growing area of Boxelder County received only a light amount of rain and will require more for germination of the grain.

All corn varietal tests have now been harvested and sampled for dry weight yields. Green weights were considered good for this State especially in the Iron County tests of southern Utah. A number of varieties show green yields of 20 tons per acre and above.

Mr. H. S. Smith was a Station visitor on September 9.

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C E R E A L   C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

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Vol. 29

October 25, 1937

No. 17

Personnel (Oct. 11-25) and Field Station (Oct. 1-15)

P E R S O N N E L   I T E M S

Dr. E. G. Bayfield is in Washington for a week to confer with members of the Division staff regarding wheat research.

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R E C E N T   P U B L I C A T I O N S

✓ Rubidium and Strontium Toxicity to Plants Inhibited by Potassium and Calcium Respectively. Annie M. Hurd-Karrer. Jour. Wash. Acad. Sci. 27(8): 351-353. August 15, 1937.

✓ Sorghums Varietal Tests in Utah. R. W. Woodward, D. C. Tingey, and R. J. Evans. Utah Agr. Expt. Sta. Bull. 281, 8 pp. July 1937. (Contribution from the Department of Agronomy of the Utah Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

✓ Mosaic Diseases of Wheat and Related Cereals. H. H. McKinney, U. S. Dept. Agr. Cir. 442, 23 pp. September 1937.

✓ Cercospora oryzae on Rice in the United States. E. C. Tullis. Phytopathology 27(10): 1005-1008, fig. 1. October 1937. (Cooperation between the Division of Cereal Crops and Diseases and the Arkansas, Louisiana, and Texas agricultural experiment stations.)

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Memorandum for Members of the Staff

A. A. A. S. MEETINGS

Mr. F. D. Richey, Chief of the Bureau, calls attention to the meetings of the American Association for the Advancement of Science and affiliated societies to be held in Indianapolis, Indiana, December 27, 1937, to January 1, 1938.

It is urgent that members of our staff who contemplate the presentation of papers at these meetings submit abstracts thereof immediately in order that they may be approved by the Chief of the Bureau and reach the secretaries of the societies early in November.

Manuscripts of the complete papers should be submitted to this Division by December 1 in order that approval may be obtained by the date set by the Chief of the Bureau.

Please indicate at the same time your desire to attend the meetings so that the approval of the Secretary of Agriculture may be obtained without delay.

I regret that we shall not be able to pay the expenses of those attending but we shall be glad to put forward a request that those wishing to attend be permitted to do so on Government time, i. e., without expense to the Government except for salary.

Sincerely yours,

(M. A. McCall)

Principal Agronomist in Charge  
and  
Assistant Chief of Bureau.

AMERICAN SOCIETY OF AGRONOMY

The thirtieth annual meeting of the American Society of Agronomy will be held in the Hotel Stevens, Chicago, Ill., December 1, 2, and 3. The general session of the Society will be held Thursday morning, with President F. D. Richey in charge of the program. Programs for the Soils Science Society of America, which also functions as the Soils Section of the American Society of Agronomy, and for the Crops Section are being arranged by their respective chairmen, Dr. Richard Bradfield and Dr. O. S. Aamodt. Various other organizations with agronomic interests are also meeting in Chicago at the same time. [From Jour. Amer. Soc. Agron. 29(10): 883. October 1937.]

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UNITED STATES DEPARTMENT OF AGRICULTURE  
OFFICE OF DIRECTOR OF PERSONNEL  
WASHINGTON, D. C.

October 15, 1937

Personnel Circular No. 54

THE DISCLOSURE OF INFORMATION PERTAINING TO CLAIMS  
ARISING FROM INJURIES IN WHICH THE UNITED STATES  
HAS AN INTEREST IS PROHIBITED

On July 10, 1937, the U. S. Employees' Compensation Commission adopted an amendment to its regulations prohibiting the disclosure of information contained in files, records, statements of witnesses, medical or other reports pertaining to claims arising from injuries in which the United States has an interest.

All officials and employees of the Department of Agriculture are hereby instructed to observe the following amendment to the regulations of the U. S. Employees' Compensation Commission:

"Pursuant to the provisions of Section 32 of the Act of September 7, 1916 (39 Stat. 749), the Commission adopts and promulgates the following regulations:

"All files, records, statements of witnesses, medical and other reports and papers pertaining to any injury sustained under circumstances involving a party other than the United States, in which the United States has a subrogation or pecuniary interest, shall be deemed confidential and no disclosure thereof shall be made, except with the approval of the United States Employees' Compensation Commission.

"No official or employee of a Government establishment who has investigated or secured statements from witnesses and others pertaining to a claim for compensation, or any person who has the custody of such investigations or records, shall disclose information pertaining to such records to any person without the approval of the United States Employees' Compensation Commission. Employees have no control over such records or information with respect to permitting the use of same for any other than official purposes, except in the discretion of the Commission.

"Employees or custodians of records are hereby prohibited from presenting such records of information in court, whether in answer to a subpoena duces tecum or otherwise. Whenever a state court subpoena shall have been served upon them, they will appear in court and respectfully decline to present the records or divulge the information called for, basing their refusal upon this rule.

"In all cases where a Government employee is requested to testify in regard to matters of an official or confidential character, knowledge of which has been acquired in his official capacity, he shall respectfully decline to answer. If his reasons are requested by the court or body conducting the hearing, he shall courteously state that the matter is privileged and cannot be disclosed without the specific approval of the United States Employees' Compensation Commission, citing this rule."

P. L. Gladmon  
Acting Director of Personnel.

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UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF PLANT INDUSTRY  
WASHINGTON

Office of Chief of Bureau  
B. P. I. Memo. 957

October 21, 1937.

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

It recently has come to my attention that some of the Bureau personnel have written individually to foreign countries requesting fungus cultures for use in connection with their research. Some of these cultures were organisms pathogenic to cultivated crops and which are not known to occur in the United States. Others may have been innocuous.

In view of the dangers arising from bringing in cultures of pathogenic organisms, it seems highly undesirable to have members of this Bureau handle such requests individually. In the future, therefore, all such requests should be routed through the division head to the Office of the Chief of the Bureau for final approval before going forward. Final forwarding will be through the Division of Plant Exploration and Introduction, which will undertake to obtain proper sanction from the Bureau of Entomology and Plant Quarantine in advance so that the shipments will move promptly without danger of seizure when they finally enter this country.

Sincerely yours,

F. D. Richey  
Chief of Bureau.

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#### FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

#### KANSAS

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson)  
(Oct. 15)

In this territory the rainfall for all of September amounted to a little over two inches. During this period row crops and seedbeds for wheat were at times subjected both to high temperatures and high wind velocities. Surface moisture was lost from the seedbeds and as a consequence many farmers have not yet sown their wheat. On fallowed land moisture was generally reached in drilling and wheat germinated fairly satisfactory.

A recent inspection trip by the writer from Hays to Garden City and into southwestern Kansas showed a very large acreage of wheat yet to be sown. Well-fallowed fields indicated moisture to the depth of from 24 to 36 inches where determinations were made. On cropped land moisture rarely exceeded 12 inches in depth with the first 4 to 6 inches dry. From scattered reports it would seem that conditions are not favorable for wheat in the western third of the State except in localized areas where heavy rains occurred.

Another observation made on the trip was that little grain sorghum was produced except in irrigated sections. The purity of the grain sorghums has greatly deteriorated as compared to former years.

Wheat seeding has been completed at this Station. The experimental sorghums have been threshed. By using fallowed land we were able to bring through most of the hybrid material and to restore our reserve of sorghum seed, which was almost depleted after four years of drought.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN  
(Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Oct. 18)

Cool, cloudy weather with frequent showers prevailed during the first half of October. The precipitation was 0.43 inch. The maximum temperature was 65° on the 9th and the minimum 12° on the 13th. Flax still standing in the field showed severe frost damage following this low temperature but it was not entirely killed.

Weather conditions up to the end of the first week in October were favorable for the development of rusts on plants. Winter wheat and rye showed fairly heavy leaf rust infection. Stem rust infection also was heavy on winter wheat and second-growth oats and barley. No crown rust was observed on oats. Severe rust infection also developed on some flax varieties. The recent cold weather apparently has checked the propagation of rusts on cereals, as no fresh pustules have been observed during the past few days. On flax, red rust pustules are still prevalent on the green leaves of some varieties.

Flax nursery material which still had many green bolls when harvested in September is not yet dry enough to thresh. Most of the late flax in nursery rows remains to be harvested.

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## C E R E A L   C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 29

November 10, 1937

No. 18

Personnel (Oct. 26-Nov. 10) and Field Station (Oct. 16-31)

### P E R S O N N E L   I T E M S

Dr. B. B. Bayles recently spent several days at La Fayette, Ind., where he conferred with officials of the agricultural experiment station regarding cooperative wheat research. Wheat in the experimental plots at La Fayette as well as on farms over the State is going into the winter in unusually fine condition. A rather large nursery in which varieties and hybrids of wheat are being tested for resistance to hessian fly is being grown in cooperation with the U. S. Bureau of Entomology and Plant Quarantine. A few varieties and a number of hybrid progenies show a high degree of resistance, while nearly all of the plants in checks of the susceptible varieties are infested.

Mr. W. W. Bryan, corn breeder of Queensland Agricultural College, Queensland, Australia, is spending several days in Washington conferring with officials of the Bureau of Plant Industry.

Mr. Leonard M. Josephson, graduate student of the University of Wisconsin, was a Division visitor November 1 and 2.

Mr. L. W. Kephart spent several days recently in Pennsylvania with Extension Agronomist J. B. R. Dickey, locating weed areas for future eradication experiments and investigating a troublesome weed situation. The situation illustrates the fact that weed infestations are not always the result of lazy farming. Lancaster County, Pennsylvania, is one of the richest agricultural counties in the United States and has been farmed for generations by Pennsylvania Dutch, who probably are among the most careful farmers in America. Nowhere in the United States is there to be found an area having a neater, more weed-free appearance. Nevertheless, Canada thistle, quackgrass, bindweed, and horsenettle are so troublesome in these counties that farmers are asking a special investigation of the problem by the State College and the United States Department of Agriculture.

Dr. R. D. Lewis arrived in Washington on November 10 to spend about two weeks in conferences with workers in the Bureau of Plant Industry relative to corn research and seed production and distribution. He also will prepare reports and manuscripts.

RECENT PUBLICATIONS

Physiologic Races of Tilletia tritici and T. levis. H. A. Rodenhiser and C. S. Holton. Jour. Agr. Research 55(7): 483-496. October 1, 1937. (G-1062) (Investigations conducted in cooperation with the West Virginia, Minnesota, Montana, Washington, and Oregon agricultural experiment stations.)

Flaxseed Production in the Far Western States. A. C. Dillman and L. Gordon Gear. U. S. Dept. Agr. Farmers' Bull. 1793, 22 pp., 10 figs. September 1937. (This bulletin is based in a large part upon cooperative investigations of flax carried on by the Division of Cereal Crops and Diseases and the Department of Agronomy, California Agricultural Experiment Station.)

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FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins)  
(Nov. 3)

All rice plots on the Station have been harvested with the exception of a few late maturing varieties in the date-of-seeding experiment and in the breeding plots.

Only a few commercial fields of rice remained unthreshed at the end of October. Yields as a whole seem to have been satisfactory. Some reductions in yield from lack of fresh water have been reported in certain areas near the Gulf. Prices have been unsatisfactory except for Rexoro, Mira, Fortuna, and some other long-grain varieties. The price of Rexoro rough rice has recently been as much as a dollar per barrel higher than that of Blue Rose.

Temperatures in October were about the same as in October of last year, except that the minimum for the month was 38° while last year it was 46°.

The total precipitation of 4.62 inches is 3.05 inches more than it was last year and 1.13 inches more than the 27-year average for October.

During the month of October the Superintendent was called upon to judge rice at local fairs, conduct a seed-rice judging contest and address one of the classes in Agriculture at the Southwestern Louisiana Institute, Lafayette, La.

Miss Louise Beatty, who has been for several years employed as a general office assistant, resigned October 15. She has been succeeded by Miss Genevieve Babin.

RICE EXPERIMENT STATION, CROWLEY (Rice Breeding, H. E. Jodon)  
Nov. 5)

The field work for the season is coming to a close at this time. The threshing is completed although the grain has not been cleaned and reweighed. Yields are considerably higher than previously because the tests were on more fertile land. Straighthead occurred in most of the tests, and varietal differences in susceptibility were obvious. Marked differences were also seen among strains in response to the disease complex which results in premature dying in Blue Rose and other varieties.

More than 1,200 crossed seeds were obtained, including 700 of a Blue Rose X Rexoro back cross. Over 45 percent of the florets pollinated developed.

Mr. Leo P. Hebert, graduate student in agronomy at the Louisiana State University, and who assisted with the improvement project through the summer, returned to his studies October 1. Much credit is due Mr. Hebert in making this season a most successful one for the advancement of the project.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins)  
(Oct. 15)

Weather conditions in September were rather unfavorable for the preparation of seedbeds and seeding of fall-sown small grains. There was no rain of importance, only six showers amounting to 0.43 inch having been recorded. A maximum temperature of 101° was recorded on the 21st, although the mean for the month of 78° was only 0.8° above normal. Considerable small grain was sown in this area in dry ground but no pasture was provided, as no small grain emerged until October.

Weather conditions during the first half of October were about seasonal. The first week of the month was warm, a maximum of 99° being recorded. Cloudy weather with frequent showers prevailed from October 9 to 17. The total precipitation of 2.79 inches was very fine for small grains sown prior to this time. No experimental grain was sown prior to the rains, although field seedings were made on the Station.

The writer was in the Panhandle section from September 26 to October 7 and all cooperative experimental wheat seedings were made at that time. The wheat breeding nursery and the varietal test at Amarillo were sown under none too favorable conditions and full emergence probably will not occur until further rains occur. Cooperative tests at Bushland, Plainview, and Floydada were made under favorable conditions. The northern part of the Panhandle is again in serious condition from the standpoint of moisture for seeding wheat.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Nov. 2)

Contrary to all signs and expectations a killing frost has not occurred as yet. A short distance south and southeast of Woodward frost has stopped sorghums and cotton. The extra period of ripening weather this fall is enabling many varieties and selections to ripen seed, which is badly needed. Plots and seed selections are being harvested as rapidly as possible.

There appears to be considerable feed grain and forage in the country but no surplus. Grain yields will be less than a long time average.

The maximum temperature for October was 94° on the 4th and 88° on the 29th. The minimum temperature was 34° on the 23d. The precipitation for the month was 3.65 inches, all of which except 0.12 inch was recorded in the first half.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy,  
V. C. Hubbard) (Nov. 2)

October rains that started on the 8th brought about uniform germination of all seedings of winter wheat, barley, and oats and did very little damage by erosion. Nursery seeding was started on October 7 and was completed on October 22 except for late date-of-seeding experiments.

Distribution of poisoned salt blocks in the nursery has put a stop to rabbit damage for the present. Some grasshoppers are still about but their activities have been appreciably slowed down by cool weather. They are doing little damage except along fields bordered by a heavy growth of thistles or sowed feed.

As is frequently true in this area cool weather has prevented seed sown on October 15 (optimum date for grain yields) from making enough growth to provide fall pasture or ground cover to prevent blowing. A majority of the farmers in this area seeded their wheat in September and most fields were well emerged by early October. The October rains were general and were sufficiently heavy to wet the soil in nearly all grain fields to a depth of 30 inches or more. Prospects of a wheat crop in this area are better than they have been for several years.

#### KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O.  
Johnston) (Nov. 4)

The 1938 winter wheat rust nursery at Manhattan was sown during the week beginning October 4. Seeding had been delayed about two weeks by the poor condition of the seedbed but it was finally necessary to sow despite the absence of moisture. The top six inches of soil was dry and full of large clods which made sowing difficult. Despite that fact, sowing was completed with fair success but no germination was obtained until after a rain of 1.66 inches on Oct. 16. That rain fell slowly over a period of several hours and little water was lost through run-off. Most of the wheat has now emerged to good stands but the plants are very short on top growth for this time of year.

Most of the winter wheat in this part of Kansas was sown at about the normal time but many fields had very poor or irregular stands owing to poor seedbed conditions. The writer does not recollect ever having seen such poor wheat seedbeds in this part of the State in September and October. The top soil was as dry as dust and no germination was obtained in many fields until after October 16. After the rain there was additional emergence in many fields that previously had had irregular stands. In north-central Kansas much early-sown wheat germinated but died from lack of moisture and many fields had to be reseeded.

Although the winter wheat situation now is considerably more encouraging than it was in early October, the crop is late and is a disappointment to farmers who had counted heavily on it for fall pasture.

Leaf-rust-of-wheat experiments have been started in the greenhouse and are somewhat farther along than usual for this time of year. Physiologic race determinations are under way and inoculations of hybrid wheat populations with known physiologic races will soon be in progress.

Dr. C. R. Ball, formerly principal agronomist in charge of the Division, and now in the employ of the Tennessee Valley Authority, was an office visitor today.

## NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement,  
K. S. Quisenberry) (Nov. 1)

Conditions for seeding winter wheat at Lincoln were unfavorable during late September and most of October. The ground was so dry that it was decided not to seed until it rained. By October 14, enough moisture was obtained to permit seeding, and the varietal plots and a part of the nursery were seeded on October 14 and 15. A gentle rain started the evening of October 15 and continued until October 17, giving about 1.7 inches of moisture. Some seeding was done on October 20 and 21 but the weather became so cold that hand planting was out of the question. The nursery was completed on October 25 to 27, just a month later than the optimum date.

The first seeded wheat emerged on October 29 and the later seedings are coming along more rapidly, due to several days of rather warm weather. It is hoped that growing weather will continue long enough to allow all seedings to come up and become established. While there is enough moisture in the first foot of soil to allow germination, the subsoil is still very dry.

It is doubtful if it would have been safe to seed earlier because of grasshoppers. In spite of several freezes they are still rather bad and are causing some damage. Reports from over the State indicate that some early-sown wheat was severely injured by grasshoppers.

The flats for controlled freezing studies were seeded early in October. It was necessary to water these flats as well as to protect the plants from grasshoppers, but very satisfactory stands have been obtained.

Reports from North Platte and Alliance indicate that winter wheat emerged at both stations. There is very little moisture in the soil at Alliance, but at North Platte conditions are more favorable.

## NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) [Nov. 1]

The weather during the last half of October was generally warm and dry. The maximum temperature was 81° on the 28th and the minimum, 18° on the 21st. Only a trace of precipitation was recorded.

A heavy fresh infection of leaf rust developed on rye and winter wheat. No fresh infection of stem rust has been noted during this period.

Harvesting of the late flax was completed October 29.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)  
(Nov. 2)

The month of October has been comparatively warm and dry, especially during the last half of the month. A few light showers, totaling 0.37 inch, fell early in the month. During the last 10 days of October warm, dry weather prevailed, leaving the soil very dry.

Owing to dry soil conditions field plots of winter wheat and rye made a weak, spindling growth while only a few plants germinated in most of the varieties in the nursery. Although more scarce than last fall, grasshoppers were numerous enough to injure the plots of rye considerably. One live, active grasshopper was seen as late as October 31.

#### ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartel) (Nov. 2)

The weather at Tucson has been unusually warm for this time of the year. This has been especially true of the daily maximum temperatures rather than the minimum temperatures. In October, the mean maximum temperature was 89°, the mean minimum, 53.1°, and the mean 71° and the precipitation 0.05 inch, as compared with normals of 85.1°, 51.6°, 68.3°, and 0.60 inch, respectively, for this month.

The sorghum varieties at Sacaton and the hybrids at Tucson have been harvested. The threshing probably will be completed within a week.

The high temperatures have greatly slowed down the fall growth of small grains sown on September 15 for pasturing. It has been estimated that the growth available for pasturing to date is approximately one-third lower than normal.

Dr. J. H. Martin was a Station visitor on September 27 and 28.

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## C E R E A L   C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

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Vol. 29

November 25, 1937

No. 19

Personnel (Nov. 11 - 25) and Field Station (Nov. 1 - 15)

### P E R S O N N E L   I T E M S

Dr. Charlotte Elliott is on a vacation trip in Mexico. While there she will spend six days in making observations on bacterial wilt of corn and collecting insect vectors in the vicinity of Mexico City.

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### R E C E N T   P U B L I C A T I O N S

✓ Experiments with Certain Copper Compounds as Bunt Fungicides. O. A. Nelson and R. W. Leukel. U. S. Dept. Agr. Circ. No. 452, 8 pp. November 1937. (Cooperation between the Division of Insecticide Investigations, Bureau of Entomology and Plant Quarantine, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry.)

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FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Nov. 1)

Weather conditions in October were favorable for the seeding and emergence of small grains. Precipitation totaling 3.72 inches was received during the month, all occurring from October 9 to 19. This broke the drought which had prevailed for some time and provided moisture for germination of small grains. With the exception of the rainy period, the entire month was clear, warm, and pleasant. A very light frost, with a minimum of 33°, occurred on the 23d. The maximum temperature was 99° on the 5th.

Following the rains, all small grains were sown as rapidly as possible. Seeding, except for the smut nursery, was completed on the 28th and at the end of the month the earlier seedings were emerging to good stands.

The experimental seedings at Amarillo have failed to emerge, according to word received. As a last resort the seedings probably will be irrigated to bring about germination. The Amarillo section did not receive the general rains of the 9th to 19th.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Nov. 16)

This year the first freeze, or killing frost, held off until the middle of November, on the morning of the 16th. The average date of first killing frost here is October 30. This delay in the freeze was most opportune as most of the grain development of the sorghums was late this year.

Plots are harvested and a few days will clean up the selection of seed heads. The late planted sorghums will make the higher yields because of the rains of late August and subsequent late frost date.

The maximum temperature for the first half of November was 77° on the 1st and the minimum, 26° on the 16th. There was no precipitation.

KANSAS

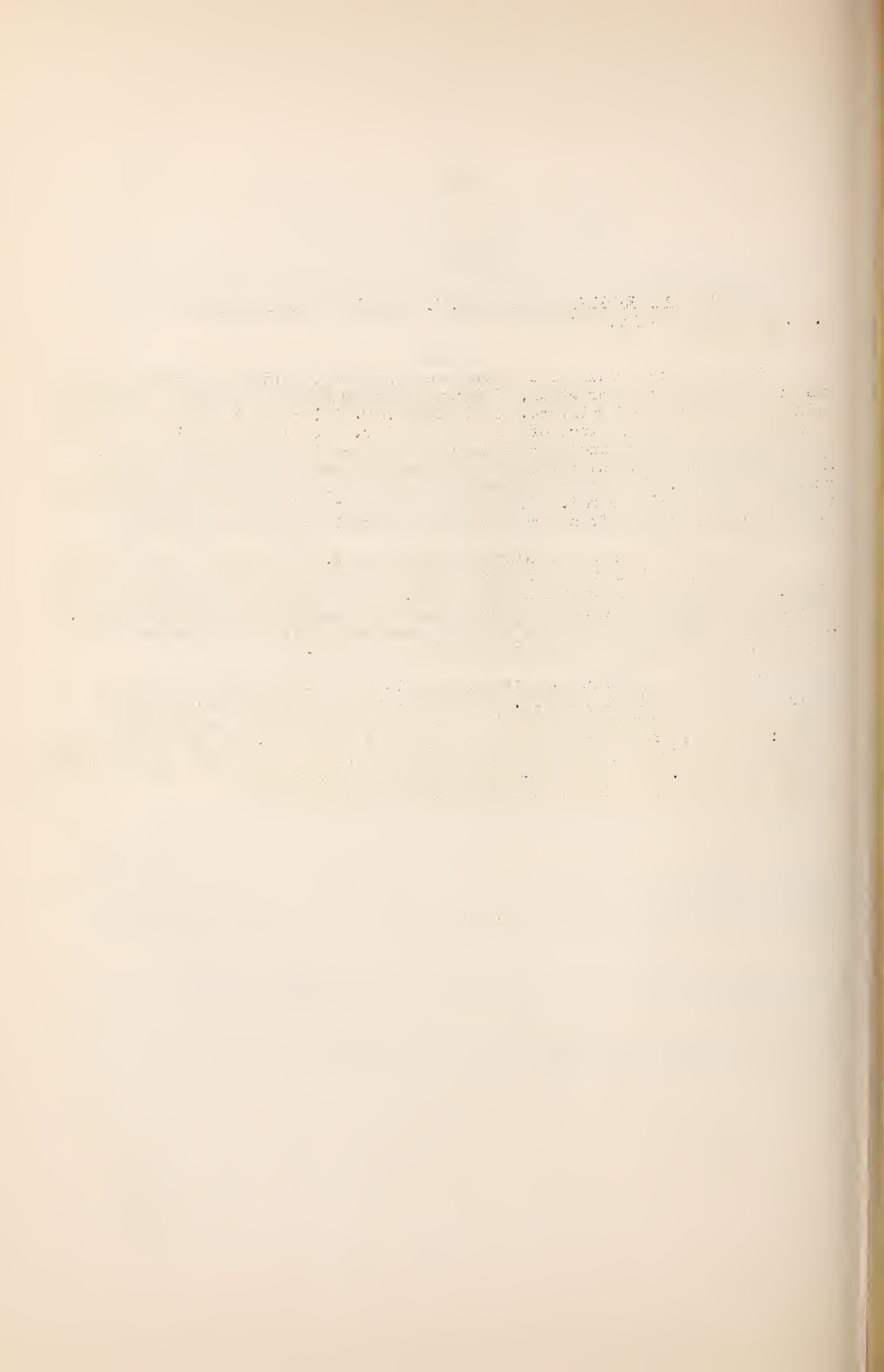
AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust,  
C. O. Johnston) (Nov. 22)

The first two weeks of November were unusually mild and winter wheat made very satisfactory progress, although growth was slow in many localities owing to a shortage of moisture. At Manhattan 0.41 inch of rain fell on Nov. 4 and approximately 1/2 inch of snow fell on Nov. 15. Although soil moisture is fairly satisfactory much more moisture is needed in this part of Kansas. Many creeks, springs, and wells are still dry and native timber continues to suffer for water. Native grass pastures are in fair condition where they have not been too heavily grazed. The western half of the State remains extremely dry although a snow of from 1 to 4 inches on Nov. 15 gave some relief.

A sudden drop in temperature occurred on Nov. 15 and the past week has been very cold, minimum temperatures going down to about 10° on several occasions. On visiting the rust nursery today it was observed that the top growth of winter wheat was more severely frozen back than usual for the time of year. Apparently the long period of mild fall weather followed by a sudden severe drop in temperature will result in some loss in stand.

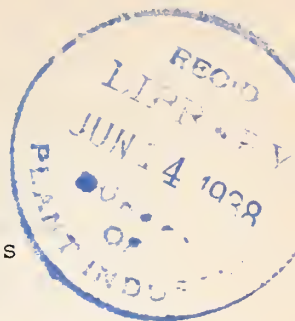
Winter wheat in south-central Kansas is in good condition and much of it is being utilized for pasture. In some of the south-central counties farmers have rented wheat pasture to western sheep growers and thousands of head of sheep are now on pasture in that part of the State. White grubs have thinned the stands of wheat in some southern counties and parts of many fields had to be resown. In the north-central and western parts of the State much of the winter wheat is still too short to furnish much pasture.

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## C E R E A L   C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)



Vol. 29

December 10, 1937

No. 20

Personnel (Nov. 26-Dec. 10) and Field Station (Nov. 16-30)

### P E R S O N N E L   I T E M S

#### A M E R I C A N   S O C I E T Y   O F   A G R O N O M Y

The annual meetings of the American Society of Agronomy, held in Chicago from November 30 to December 3, 1937, were among the most successful in the history of the organization. Over 700 individuals registered for the session, which is a much larger number than ever before attended. The number and quality of papers also were outstanding.

The program of the Soil Science Society of America extended from Tuesday, November 30, through Friday, December 3. The sessions of the Crops Section of the American Society of Agronomy began on Wednesday and were concluded on Friday. At the business session of the Crops Section a reorganization was effected, which will be described in the Journal of the Society.

At the annual dinner of the Society, Thursday evening December 2, Mr. F. D. Richey gave his presidential address, "Why Plant Research?" At the general session of the Society, held in the forenoon of Thursday, December 2, Dr. M. A. McCall spoke on "The Relation of the National Agricultural Conservation Program to Agronomic Betterment," and Dr. R. D. Lewis, extension agronomist of the Ohio State University and agent of the Division of Cereal Crops and Diseases, spoke on "Integrating Research and Extension in Agronomy." Dr. M. T. Jenkins presided at the round table discussion concerned with "Policies Regarding the Release, Distribution, and Certification of Inbred Lines of Corn and Corn Hybrids." Dr. G. A. Wiebe acted as secretary of a round table discussion of a Barley Improvement Council, which session was presided over by Mr. T. E. Stoa of the North Dakota Agricultural Experiment Station.

Other Division personnel who attended the meetings of the Society are: E. R. Ausemus, A. M. Brunson, A. A. Bryan, L. C. Burnett, J. G. Dickson, L. S. Evans, R. W. Jugenheimer, J. G. O'Mara, J. H. Parker, K. S. Quisenberry, S. C. Salmon, E. R. Sears, R. G. Shands, Luther Smith, R. O. Snelling, G. F. Sprague, L. J. Stadler, G. H. Stringfield, H. Stoneberg.

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Other papers by members of the staff of this Division presented at the meetings are:

Cooperative Production of Foundation Stocks for Certified Corn Hybrids in Ohio, by R. D. Lewis and G. H. Stringfield.

The Experimental Production of Polyploids, by L. F. Randolph.

Cumulative Hybridization, by L. J. Stadler.

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The officers of the American Society of Agronomy for 1937-38 are as follows:

President: Mr. E. Truog, College of Agriculture, University of Wisconsin, Madison, Wis.  
Vice President: Dr. R. J. Garber, U. S. Regional Pasture Research Laboratory, State College, Pa.  
Chairman, Crops Section: Dr. I. P. Trotter, Texas A. & M. College, College Station, Texas.  
Editor: Mr. J. D. Lockett, New York State Agricultural Experiment Station, Geneva, N. Y.  
Secretary-Treasurer: Dr. F. B. Smith, College of Agriculture, University of Florida, Gainesville, Fla.

The officers of the Soil Science Society of America for 1937-38 are as follows:

President, Soil Science Society of America: A. M. O'Neal, Division of Soil Fertility Investigations, Bureau of Plant Industry, Harza, La.  
Secretary-Treasurer: Dr. W. A. Albrecht, College of Agriculture, University of Missouri, Columbia, Mo.

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The following members were elected Fellows of the Society:

Dr. O. S. Aamodt, College of Agriculture, University of Wisconsin, Madison, Wis.  
Dr. W. A. Albrecht, College of Agriculture, University of Missouri, Columbia, Mo.  
Mr. Firman Bear, c/o Thos. Y. Crowell Co., 393 4th Ave., New York, N.Y.  
Dr. H. O. Buckman, New York State College of Agriculture, Cornell University, Ithaca, N. Y.  
Dr. G. W. Conrey, College of Agriculture, Ohio State University, Columbus, Ohio.  
Prof. H. D. Hughes, Iowa State College of Agriculture, Ames, Iowa.  
Dr. F. D. Keim, College of Agriculture, University of Nebraska, Lincoln, Nebr.  
Dr. R. D. Lewis, Ohio State University, Columbus, Ohio.  
Mr. J. D. Lockett, New York State Agricultural Experiment Station, Geneva, N. Y.  
Mr. H. L. Westover, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.

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Drs. McCall, Salmon, and Jenkins returned from the meetings of the American Society of Agronomy by way of Wooster, Ohio, on December 4, where they inspected the new wheat quality laboratory.

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RECENT PUBLICATIONS

Factors Influencing Seed Set in Oat Crossing. F. A. Coffman, Jour. Heredity 28(9): 297-303, figs. 1-3 and frontispiece. September 1937.

Experiments on Breeding Corn Resistant to the European Corn Borer. Marion T. Meyers, L. L. Huber, C. R. Neiswander, F. D. Richey, and G. H. Stringfield. U. S. Dept. Agr. Tech. Bull. 583, 30 pp., 1 fig. October 1937. (Cooperative investigations by the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station and the Ohio State University.)

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# FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

## LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins) [Dec. 9]

Threshing operations on the Station were completed November 17. Grain yields in some experiments were higher and more consistent than last year. In other experiments the yields were lower than they were last year. Taken as a whole, however, the results from all crops were somewhat better than they were last season.

The exceptionally dry weather during the month permitted more field work than is usually accomplished in November. Many farmers took advantage of the good weather and put their fields into condition that will make seedbed preparation easy next spring.

The maximum temperature for the month was 85° and the minimum, 27°; the average mean was 56°. Ice formed on six days, more days than in any November in the past 10 years.

The total precipitation for the month of 1.36 inches is 3.70 inches less than in November 1936, and 3.12 inches less than the 27-year average.

RICE EXPERIMENT STATION, CROWLEY (Rice Breeding, N. E. Jodon) (Dec. 3)

Nursery yields have been tabulated and, due to the fact that the varieties were grown on more productive land, are, on the whole, much higher than in previous years. No variety or hybrid selection produced a significant increase in yield over Early Prolific in the early group, nor over Fortuna in the midseason group. The following hybrid selections and varieties in the order listed gave yields that were significantly higher than those of Blue Rose in the late group:

|                     |               |                       |
|---------------------|---------------|-----------------------|
| Blue Rose x Fortuna | 2920A42-6-1   | (Arkansas selection)  |
| Kameji x Honduras   | 2911A18-1-1   | (Texas selection)     |
| Colusa x Blue Rose  | 2913A31-2-1-4 | Do                    |
| Edith x Kameji      | 295A33-1-2    | (Louisiana selection) |
| Kameji x Blue Rose  | 2912A6-1-1    | Do                    |
| Iola                |               |                       |
| Acadia              |               |                       |
| Kameji x Blue Rose  | 2912A10-1-1   | (Louisiana selection) |

The Blue Rose x Fortuna selection 2920A42-6-1 was about two weeks earlier than Blue Rose, while the others matured at approximately the same time as Blue Rose.

Cooking tests have been started and part of the shelling percentages have been determined by the Federal-State grading office.

Because of several freezes during the latter part of November it is unlikely that F<sub>1</sub> plants will survive the winter in the open field as they did last year.

# ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice Production and Improvement, C. R. Adair) (Nov. 30)

The weather this fall has been rather unfavorable for rice harvest. However, at this time nearly all commercial fields have been threshed. Yields were good and the quality exceptionally high.

All rice on the Station has been threshed and yields were a little higher than average. The yields of varieties grown in quintuplicate 1/40th acre plots are given in the accompanying table.

The excessive rainfall immediately after the winter oats were sown at the Station reduced the stands quite seriously. There also have been some reports of this same condition on farm fields. However, oats have made a good growth since emergence.

There was a period of unseasonably cold weather for three days, November 20 to 22. The minimum temperature for the month was 18.5° on the 21st. The total precipitation was 4.59 inches, which is about 1 inch less than normal.

Table 1. - Yield of grain and straw of 16 varieties of rice grown in quintuplicate 1/40th acre plots at the Rice Branch Experiment Station, Stuttgart, Ark., 1937.

| Variety           | C. I. No. | Yield of grain per acre |        | Yield of straw per acre | Grain type |
|-------------------|-----------|-------------------------|--------|-------------------------|------------|
|                   |           | (Bu.)                   | (Lbs.) | (Lbs.)                  |            |
| Zenith            | 7787      | 67.8                    | 3049   | 5311                    | Medium     |
| Fortuna           | 1344      | 64.5                    | 2903   | 6245                    | Long       |
| Arkansas 155      | ----      | 62.7                    | 2823   | 4683                    | Medium     |
| Acadia            | 1988      | 61.7                    | 2777   | 5162                    | Short      |
| Caloro            | 1561-1    | 60.8                    | 2735   | 4645                    | Short      |
| Supreme Blue Rose | 5793      | 58.1                    | 2614   | 5068                    | Medium     |
| Shoened           | 3625      | 56.0                    | 2517   | 6731                    | Medium     |
| Early Prolific    | 5833      | 53.1                    | 2387   | 4909                    | Medium     |
| Edith             | 2127      | 53.1                    | 2387   | 5202                    | Long       |
| Nira              | 2702      | 52.3                    | 2354   | 4733                    | Long       |
| Latex             | 7788      | 51.9                    | 2333   | 4813                    | Long       |
| Early Blue Rose   | 7785      | 49.2                    | 2215   | 5943                    | Medium     |
| Lady Wright       | 5451      | 46.0                    | 2069   | 4766                    | Long       |
| Delitus           | 1206      | 38.1                    | 1713   | 6103                    | Long       |
| Rexorcl/          | 1779      | ----                    | ----   | ----                    | Long       |
| Iolal/            | 4559      | ----                    | ----   | ----                    | Long       |

1/ Killed by frost before mature.

# TEXAS

AGRICULTURAL EXPERIMENT STATION, COLLEGE STATION (Wheat Improvement, E. S. McFadden) (Dec. 1)

Seeding of the small grain nursery, including flax, at College Station was completed on November 5. Good stands of everything were obtained. Flax stands were later thinned out somewhat by freezing weather which occurred a few days after emergence. The nursery was later covered by a blanket of about four inches of snow for about three days, which prevented further frost injury to the flax during a second cold spell. For the past week, since coming out from under the snow, the nursery has been making rapid growth and is in the best of condition at present.

Considerable interest is developing in the possibility of growing flax as a winter crop in south Texas. Numerous inquiries concerning the crop are received every day. Indications are that several hundred acres, mostly in small fields, will be sown this fall.

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Dec. 1)

Meteorological data recorded for November were as follows: Maximum temperature, 84°, minimum, 21° and mean, 52.1° or 2.2° below normal. The precipitation was 1.82 inches. Above normal temperatures prevailed during the first half of the month, followed by subnormal temperatures. The first killing frost of the season occurred on November 19, about a week later than normal.

Small grains made satisfactory progress. The warm weather of the first part of the month allowed the plants to stool and become well established following late emergence. The below normal temperatures during the last half of the month have hardened the plants in preparation for winter temperatures.

Because of insufficient moisture and wireworm injury, the Amarillo nursery failed to emerge to satisfactory stands. After irrigating, the greater part of the test was reseeded November 18 to 21. Although germination will be very late, growth should be sufficient to establish the plants, as there is ample moisture.

Winter wheat in the Texas Panhandle is in poor condition except in the southern part, including Hale and Floyd counties and parts of Swisher, Lubbock, Crosby, Castro, Briscoe; and Lamb counties. In the vicinity of Amarillo, very little wheat has made sufficient growth to be visible from the highway. Many fields have not emerged.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Dec. 1)

The first fall frost on November 16 was the start of a spell of cool weather that has continued to date. Growth of all cereals has been practically at a standstill since November 16. Fall seedings of spring oats and barley appear to be completely killed. Winter oat varieties (except a local composite) are badly frosted, as are tender strains of fall-sown barley and winter wheat. November 15 date-and-rate seedings of winter wheat have not emerged; in fact, the kernels are barely past the swelling stage. A November 1 seeding emerged to good stands on November 7.

Occasional jackrabbits that wander into the nursery continue to attack and be killed by poisoned salt blocks that are distributed throughout the nursery.

The precipitation in November totaled 0.03 inch. The precipitation so far in 1937 is 17.73 inches, 4.84 inches below the 23-year station average.

The maximum temperature was 77° on November 1 and the minimum, 13° on November 18 and 19; the mean temperature was 43°.

## KANSAS

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson)  
(Dec. 2)

The weather in November has alternated between mild days and stormy periods of light snow and moisture. The limited moisture has been helpful to wheat even though not sufficient to increase the subsoil moisture supply which, in most cases, is not adequate to insure a crop next year.

The field work on the Cereal Project has been brought to a close, but several new outdoor experiments are under way. The winter wheat pasturing experiment was started last week as a further check on the satisfactory results obtained in 1936. Five spring calves are grazed on 3.7 acres of wheat with free access to sorghum stover, water, and shelter. The effect of the grazing on the yield of wheat and the gains made by the animals will be noted. The grazing will be continuous until some time in March. Several of the large commercial fields of wheat on this Station are or will be grazed during the winter.

Only in several localized areas in western Kansas has wheat made satisfactory growth for grazing. One of the favored spots is extreme northwestern Kansas. In one county 25,000 lambs from Wyoming have been brought in for winter grazing on wheat. Usually such lambs are held in transit, grazed for a period of 60 to 90 days, and then moved on to the river markets.

The palatability studies with sorghum are being conducted for the third season. In this test individual yearlings are given free choice of a series of varieties of sorghums, or sorghums which have been harvested at different stages of maturity. The experiment is duplicated. Animals have a pretty definite sense of likes and dislikes, and fortunately where two individuals are used the agreement is quite close and satisfactory.

While the newer phases of the work are not yet far enough along to predict the outcome, the indications are that moisture content, pliability and size of stalks, degree of maturity and juiciness, and to some extent sweetness, are factors in palatability. Sweetness as judged by our sense of taste is probably not so important as has often been assumed. The old theory that leafiness is a prime factor in a good forage sorghum is seemingly going to be broken down, from observations that have been made. The character of the stalk is of far greater importance as judged by the action of the animals under study.

## NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Dec. 2)

Calm, mild weather prevailed in November until the 12th, when snow and wintry weather set in. Cloudy weather and frequent snow squalls were the rule for about two weeks. During the last few days of the month, warm, clear weather prevailed so that a snow cover of about 5 inches was reduced to bare ground on open fields and a light covering in stubble fields by the end of the month. The precipitation for the month was 0.53 inch, or about normal. The mean temperature was 17.3°, or somewhat below normal. The minimum temperature was 15° below zero but did not remain below zero for long.

Progress is being made on the annual cereal report.

## ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartel)  
(Dec. 6)

The mean temperature for November was 59.4° as compared with a normal of 57.7°. The minimum temperature was 33° and the maximum, 88°. The first killing frost in the fall normally occurs on Nov. 19. The total precipitation was 0.19 inch.

All the small grain seedings at the Salt River Valley Experiment Station near Mesa have been completed. The seeding at Tucson probably will start sometime this



